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ABSTRACT

This document summarizes a comparative analysis of the interconnections between technological and socioeconomic developments in agriculture and rural development, human capital formation, and social systems in the 13 candidate countries (CCs) for admission into the European Union (EU) and in the 15 countries of the EU. Specific topics considered in sections A through C are as follows: (1) the unsustainability of the Common Agricultural Policy (CAP); (2) human capital formation; and (3) social systems (pension systems, unemployment compensation, health care, consumer protection, migration, gender policies, social relations). Section D contains the paper "Demographic Change in the EU-Pre-accession Countries: The Challenges of an Enlarged EU" by Gery Coomans. Section E summarizes key arguments and recommendations presented in sections A through D, including the following: (1) thinking about the CAP and its implementation must be revised; (2) although most CCs do not differ significantly from the EU average when analyzed based on the conventional indicators of educational input and output, the CCs may in fact be facing a human capital deficit that the conventional indicators cannot capture; and (3) the notion of "social Europe" based on shared values of equality and social structures is not always consistent with EU external policies. Fifty-four tables/figures/maps are included. A 56-item reference list and a list of 16 suggestions for further reading are included. (MN)

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IPTS/ESTO Studies

on Reforms of Agriculture, Education and Social Systems within the Context of Enlargement and Demographic Change in the EU

Final Report

June 2002

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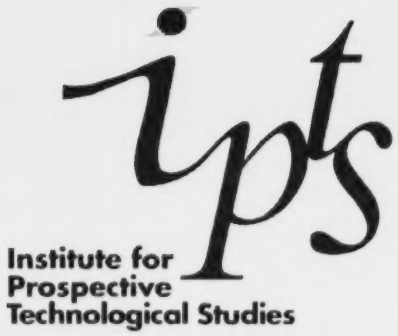

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Background of the Report

In the context of the "Futures" Project on the techno-economic and societal impact of Enlargement, the IPTS launched a new foresight project involving high level representatives from the Candidate Countries. The aim of this project is to identify through prospective methods the main contemporary challenges for pre-accession countries and discuss their consequences for three policy areas: Science/Technology, Competitiveness and Employment. An expert panel has been set up to work with IPTS on each of these clusters. The issues raised by the experts and the results of the Steering Group and panel meetings (Tallinn, September 2000; Brussels, January 2001; Seville, May 2001; and Prague, September 2001) have been the core input for this ESTO[1] project.

This ESTO project, of which preliminary results were presented to the Forum Bled (Slovenia) in early December 2001, deepens the analysis of the interconnections between technological and socio-economic developments in three areas: agriculture and rural development, human capital formation and social systems. Although the European Union's influence on agriculture at present is more topical than on education and social security, both in terms of budget and impact on Member States' policies, issues of centralisation, autonomy and coverage are likely to become the subject of reflection and debate in an enlarged Union in all three areas:

- Proposals to shift the Common Agricultural Policy from financial support based on production towards farm support for the sake of rural development should consider whether such support is better generated and provided at the national level than distributed through the Community.

- The governance of education is very much matter a matter for the Member States, but within each country there is continuous tension about the degree of autonomy that should be given to schools and teachers on curricula, textbooks and budgetary decisions. There is also a debate on the public or private provision of education. These questions need to be lifted to the European level for two reasons: the aim of increasing the mobility of students and the gains in efficiency and performance that can be obtained from a comparison of national education systems and results.

- Two crucial questions on social security are to what extent its provision should be considered as a right for the inhabitants of a country based on tax payments and to what extent social benefits can be restricted to those who have made earmarked contributions during a certain number of years. Such questions have been thoroughly analysed in a long term perspective for pension systems but are equally relevant to social insurance for sickness and unemployment. Strongly related are the equal rights of men and women and family issues. A review of social systems in the EU and the candidate countries would be highly relevant for mobility and migration policies in an enlarged Union.

Rather than attempting to give full answers to these questions, this report presents information on where the candidate countries stand in comparison to the EU-15. Where the issues are controversial, the different parts of the study present the points of view and provide some reflection on the arguments. Material from international organisations such as the OECD and the World Bank and from non-governmental organisations is taken into account.

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[1] European Science and Technology Observatory.

Not all Candidate Countries are covered extensively in every part of the study. Instead it focuses on a number of cases that highlight the differences between the countries, if possible including at least Poland and Romania, the two Candidate Countries with the largest population sizes. Where available, statistical material and examples from the Candidate Countries have been used in the study and, where relevant, comparisons with the experiences of EU member states, and with the cohesion countries in particular, have been included.

The future of agriculture is a big issue for Enlargement, given that the pre-accession countries have large agricultural sectors. For most of these countries the share of agriculture in GDP and employment is between three and ten times higher than in the countries of the EU15. **Part A** argues that the future of agriculture in the Candidate Countries and the outcome of its restructuring depend to a large extent on the policy of the EU. It deals with the future of agriculture and rural development in Candidate Countries as a consequence of EU Enlargement, including the possible application of the CAP, as shaped by the introduction of new technology and foreign direct investments (FDI) and trends in Candidate Countries' investment in the agri-food chain. Part A also reviews alternatives to the CAP, for instance in focusing on organic farming practices and in the production of non-food crops for energy purposes and for the production of cellulose.

All Candidate Countries are going through a phase in which agricultural production and employment are declining as a percentage of total gross value added and overall employment in the economy. Whereas some countries have already largely completed this part of the economic transformation process, other countries (Romania, Bulgaria, Poland) are still relying heavily on agriculture as a buffer in times of economic restructuring. Some countries have seen people move from urban to rural areas to provide for subsistence in the absence of other social safety nets. The adjustment of the agricultural sector in the pre-accession countries takes place against the background of a rethinking of the EU's common agricultural policy, inspired by recent food scares and the notion that agricultural and rural development support in the Community cannot be maintained in the face of enlargement. (Part A was managed by REC.)

There are major challenges ahead for the Candidate Countries in building up a "knowledge based economy" from the potential that lies in the availability of technically skilled and experienced R&D personnel. In the first place, there is the fear of a "brain drain" of top researchers towards Western Europe and beyond. Secondly, although partly as a result of the emergence of private universities student numbers are increasing in some Candidate Countries, this has not led to an increase in the numbers of teachers, which suggests that the quality of teaching has deteriorated. The problems of quality and structure may be quite substantial, especially given the underlying mismatches between the role of the old system of higher education and the requirements of today's economy that remain to be tackled.

Part B therefore tries to assess how the Candidate Countries perform with regard to available indicators of human capital formation. Despite a rather good record as compared to the EU average, such indicators of human capital formation are most likely to provide an overly optimistic picture. The disappointing experience of East Germany after EU-accession seems to show that the economically relevant stock of human capital in formerly socialist countries may turn out to be much lower than would be suggested by conventional indicators. In addition, Part B points out that raising the stock of human capital is no easy task. A brief review of the literature suggests that public worker retraining programs, which can be considered as short-run investment in human capital, have proved to be ineffective at best in many European countries, and especially in East Germany after reunification. Long-run investment in human capital would have to rely on improved schooling, but there is

no convincing evidence in the literature that strongly increasing schooling expenditures have boosted student performance in European countries in general. The education systems in Central and Eastern European Pre-Accession Countries (PACs) are not only being confronted with the challenges of educating citizens to cope with the demands of increasingly global and knowledge and information based societies, but also with those of the transition from planned command-and-control socialist economies to a free market economy. While the educational systems' performance is no worse than that of many EU member countries, according to the recent OECD PISA report, finding the financial resources for the reforms suggested by the results of this study is likely to prove difficult. (Part B was produced by Erich Gundlach and ITAS)

Part C on social systems describes and analyses, (in part through country studies on Hungary, Poland and Romania), the existing social protection system and their main features, taking into account the economic, financial, social and demographic context. The aim is to give some insight into how the social protection system operates and what the main mechanisms are, giving an indication of their efficiency, effectiveness, sustainability, adequacy of coverage and the economic incentives resulting from the systems.

In general the social protection system comprises: healthcare, sickness, maternity, invalidity, old-age pensions, survivor pensions, employment injuries and occupational diseases, family benefits, unemployment, minimum (subsistence) social assistance, long-term care, disability.
(Part C was managed by VDI-ZTC.)

Part D provides an in-depth insight into the demographic change in pre-accession countries, giving an overview of the demographic situation and developments in the 12+1 Candidate Countries, showing the main implications for the labor market, the social security system and public expenditure, with a time horizon of 2010, and 2020 whenever reasonable. It comprises sections on demographics; the triple aging of the population and its elderly and working parts; the implications of the demographic shift for the labor supply; including through education levels; and an analysis of detailed data on mobility and migration.
(Part D was supplied by ISMEA.)

The **conclusions** of this report focus on the interconnections of the four parts in view of the future Enlargement of the European Union. They present an overview of the findings from Parts A, B, C, and D, highlighting which key problems need to be addressed in the light of future accessions to the EU as well as how the ongoing reform process in the EU will be affected by Enlargement.

Introduction

The economic and institutional transformation process in the Candidate Countries has started off with a significant decline in output and employment, and an increase in poverty, in most cases followed by a phase of increasingly stable growth. In some Candidate Countries, such as Poland, recovery started soon after the initial economic decline. Their economies have grown strongly since the mid 1990s, and unemployment is declining. However, the levels of economic development of most Candidate Countries are lagging behind those of the EU-15. This is reflected in income opportunities; the availability of infrastructure and utilities (water, electricity,...), social services (education, health, ...), consumer goods and services; the quality of the environment (including social aspects such as the access to recreational and cultural activities). The differences in all these areas are highlighted by the proximity to, and possible future integration with countries that do offer such amenities.

All Candidate Countries are going through a phase in which agricultural production and employment are declining as a percentage of total gross value added and overall employment in the economy. Whereas some countries have already largely completed this part of the economic transformation process, other countries (Romania, Bulgaria, Poland) are still heavily relying on agriculture as a buffer in times of economic restructuring. Some countries have seen a move from urban to rural areas to provide for subsistence in the absence of other social safety nets. This pre-accession adjustment of the agricultural sector takes place against the background of a rethinking of the EU's common agricultural policy, inspired by recent food scares and the notion that agricultural and rural development support in the Community cannot be maintained in the face of Enlargement. What are the impacts of new technologies on the retooling of the agri-food chain in an enlarged Union? Are we moving towards a dichotomy between large-scale semi-industrialized farming on the one hand and small-scale organic farming for local consumption on the other? To what extent will farms be controlled by big food producers and supermarket chains? Will there be a move back to the cities once industrial employment recovers and the services sector starts to grow? Is there a risk of migration of agricultural workers if recovery is perceived to be too far down the road? What is the potential role of new technologies in the agricultural and urban/rural adjustment processes in the Candidate Countries? These are all questions that are touched upon in Part A of this Report.

Part B addresses issues of "human capital formation". Although education statistics on the Candidate Countries show relatively high scores, there are indications that their education systems are not really geared up to teaching the technical and managerial skills needed in modern market economies and free societies. Apart from investment in a number of particularly apt industries, this lack of skills may hold back foreign investment. With the adjustment of primary and secondary education systems, the problem can be expected to fade with time but at a pace that might not be fast enough for the needs of society. What is the quality and the state of the education in the Candidate Countries in respect to other standards than the ability to reproduce basic learning and general knowledge? What is the typical equipment used for school teaching? What is the level of the technical, computing and language skills of the teachers? To what extent can the deficiencies, of educators as well as students, be corrected through training on the job? How important, in terms of means and incentives, are adult education and life-long learning?

Part C deals with social systems. The reform of social security systems in the Candidate Countries is characterized by the need to honor the commitments from the past and the lack of funds to set up a decent system for the future. At the same time, although perhaps for different reasons, EU member states are reforming their social systems. Their reforms are more motivated by concerns about the

aging of society or by a desire to shift part of the burden of social security provisions to the private sector. In an European context, with possibly an increase in cross-border migration between member states in the future, the compatibility of social security systems and the adoption of best practices may become a crucial issue. The Candidate Countries, which are setting up such systems from scratch in many cases, might attempt to leap-frog the member states in what they expect to be developed as EU acquis. In doing so, they risk to encounter setbacks. Poland, for instance, had technical problems with the recent introduction of the information system for the new pension scheme. Some questions to be faced by Candidate Countries and the EU-15 alike are: Do technological developments allow a more differentiated system where workers and economic dependants can be part of multiple support systems, not synchronized and partly overlapping? Should social insurance be completely separate from taxation or are there technological solutions to combine and balance them out across jurisdictions? To what extent should social safety systems act as minimal safety nets and provide only for assistance at subsistence levels and to what extent should they be supplemented by collective and private insurance schemes? What are the risks that such reforms lead to a lasting dichotomy of the society?

The aging of society and the shift from agriculture to services, maintaining a share of manufacturing that is compatible with the international division of labor, are two developments that have taken place in the EU member states in the past 40 years that are likely to be repeated in the Candidate Countries in a shorter time span. Given the relatively low levels of social security the economic adjustment process has in some countries already induced a move back to family support, in particular in agricultural areas. It has also tended to lengthen the stay of younger people in the education system. These trends are analyzed in Part D. In combination with demographic changes, such as the drop in fertility rates and the increase in life expectancy, there are a number of areas in which a deeper analysis of the implications of Enlargement for EU policy making could be useful:

- The future of agriculture and rural development in the EU and the Candidate Countries, including the introduction of new technology and the trends in cross-border investment in the agri-food chain.
- The comparison of education levels and standards, also in relation to the efficiency of different schooling systems and national education budgets.
- The implications of socio-demographic trends on pension, health and social security systems, for instance in relation to the employment and labor participation targets set by the Council in Lisbon.
- The opportunities posed by the different phasing of economic and demographic developments in the EU member states and the present Candidate Countries for labor migration and cross-border investment in the enlarged Union: how to find the right balance?

The four studies compiled in this Report present a number of views on these very much interrelated issues. They analyse and compare the available data, and as such provide both an onset and a rich source of material for further studies. Only in a few places the report arrives at policy-relevant conclusions; they are briefly summarized in Part E. The main difficulty is how to separate short-term responses to economic decline from the policies that are needed to cope with long-term demographic and social change in the enlarged Union.

Part A: Agriculture and rural development

This part assesses the future of agriculture and rural development in Candidate Countries as a consequence of EU Enlargement/ introduction of the CAP and introduction of new technology, and as shaped by foreign direct investments (FDI) and other domestic investment trends in the agro-food chain in PACs. The also attempts to review alternatives to the CAP, both in general and more specifically in focusing on organic farming practices and in the production of non-food crops for energy purposes and for the production of e.g. cellulose.[2] The scope of the part is all PACs, but the focus has been placed on Poland, Bulgaria and Romania. These countries account for a large share of the total agricultural output of PACs and they are at the same time the countries with the biggest difficulties in regard to meeting the demands of the acquis for enlargement.

Poland and Romania are the two Candidate Countries with the highest agricultural production.

The future of agriculture and rural development in PACs will be shaped by economic, technological, political and social forces. The predominant economic force is the market reforms and privatisation of land. By and large, both foreign and domestic investment have bypassed the agricultural sector and mostly gone into food processing and the retail sector. Introduction of new technology is hardly going to be an important driver of change in agriculture in Candidate Countries, but may have an impact on creating new job opportunities, in new crop-processing industries for non-food production and for non-agricultural activities such as rural and eco-tourism, crafts, services, providing and maintaining rural landscapes, etc., but only if alternative rural development is chosen as a strategy.

The overriding political force is the EU Enlargement process, of which the adoption of the agricultural acquis has turned out to be the most important and the most difficult to meet for many PACs, especially in the three selected countries.

It is possible that in case of Romania, the environmental acquis will be the most difficult to accomplish.

The most important social factor is the behavior of voters and consumers. Farming contributes substantially to total employment but not to the growth of GDP, which makes any restructuring of agriculture extremely sensitive, because any political coalition will have to take into account the livelihoods of the families in rural areas. Food is still the most important item in household budgets and any rise in prices, as expected by the adoption of CAP, will severely affect many poor families in rural areas.

The main findings of the part are:

- Integration of PACs offers the EU a chance to reconsider the current path of development and change direction to more sustainable agricultural practice.
- CAP is unsustainable for PACs, economically, financially, environmentally and socially. This very general statement must, obviously, be analysed and formulated for each specific country.

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[2] This part was written as a truly eclectic product, as we try to synthesize recent research carried out at Sussex University/SPRU, University of Bologna and at REC (input to the 6th Environmental Action Plan of EU, surveys of environmental funds of CEECs and a new project on Eco-efficiency credit lines). REC subcontracted work to consultants in Poland (IUCN Central Europe Office, Ms Dorota Metera), Bulgaria (Ms. Svetla Nikolova from Agro-link, a rural development NGO and Romania (independent consultant Ms. Carmen Margina). Whole texts of their "country reports" are available in REC.").

Important contributions from other sources of research into the relationship between CAP and Enlargement have also been included, notably the so-called CEESA project (Sustainable Agriculture in CEECs), Swedish research at Uppsala University (Eva Rabinowicz), Danish research (SJFI) on the "Economic Impacts of the Enlargement of the European Union", and [UK] a EU research conducted by A. Buckwell ("Towards a common agricultural and rural policy for Europe"- CARPE).

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- Reforms of CAP would have to take into account a much sharper focus on organic or sustainable farm practices, new legislation (including a move away from subsidies to support for sustainable rural development), new taxation and pricing.
- The feasibility of reform would also include new employment opportunities in rural areas, based on production of industrial, non-food crops for energy use, transport and alternative materials, innovation of relevant technology, and the concurrent introduction of taxes on fossil fuels[3]. Also there seems to be scope for other business activities such as eco-tourism, maintenance of national parks, etc. Part of the important PAC heritage is the large national parks, which contribute immensely to biodiversity in Europe.

We have also attempted to assess the conclusions with a view to implications for technology and policy:

The PACs (and indeed EU as well) have a basic choice between two technology[4] extremes:

1. intensive farming based on well-known machinery, use of fertilizers and pesticides on larger and larger farms, introduction of industrial management practices, owned by relatively capital intensive companies. Crops would be selected based on direct payments and other interventionist measures. Farm products will be transported long distances and processed in large-scale industries, which serve international markets; and final products will be sold in retail chains located close to major urban centers. The major technologies are mature, so new technology developments would mainly come from the possible use of genetically modified organisms.
2. more sustainable, possibly organic, farm methods, based on human labor intensive production on medium sized , typically family-owned farms, with regional processing units, which serve regional markets. Mainly based on market response, there would also be a wider differentiation and refinement of products, which would fit into a strategy of specialised production for the world market. Finally, a part of the crop rotation might include production of non-food, industrial crops. New technology developments would be necessary, thus making the agro-food chain a source of innovation. The capital intensity of this type of organisations would be relatively low, albeit higher than today.

The related policy extremes for the technology scenarios could be described as follows:

1. Adaptation of CAP as it is known today in EU, either based on an increased budget for CAP or on spreading the same CAP budget on more farmers
2. Adaptation of CARPE measures, based on a budget for subsidies and direct payments, which will be phased out and replaced by incentive and tax schemes, which promote sustainable farm practices.

The implications for training systems are quite clear: a massive re-training of farmers must be implemented in both cases, but the content would be quite different depending on the choice of technology and policy.

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[3] Compare with recent findings of the EU Commission from the ExternE research project: http://externe.jrc.es/reports.html, where so-called externalities have been calculated and incorporated into prices of fossil fuels and other forms of energy.

[4] „Technology" is here defined as the combination of certain techniques with compatible organisational structures and borne by a common underlying set of social values. In other words, technology is not only „hardware" but also what others have phrased „orgware".

A.I. CAP is unsustainable - both in EU and in PACs

Agriculture, the agro-food chain and rural development in Candidate Countries have experienced immense change during the last decade or so. With EU Enlargement on the agenda of most Candidate Countries, even more change is to be expected.
We take a rather critical view not only of the CAP as it is, but certainly also on extending CAP to PACs, as it is increasingly seen as a source of unsustainable development in the basic sense of that word: economically, environmentally and socially.

> "After the "scandals" related to agriculture and food (foot and mouth, BSE, dioxin, GMO and the like), EU public opinion showed a negative attitude toward CAP, which is considered a very costly policy (50% of the EU budget) and unable to protect from a negative impact on food safety and quality, on environmental pollution, on animal welfare, or on rural and agricultural jobs.
>
> On the other side, if CAP as it is were applied in the Candidate Countries, all these problems will remain unsolved and, moreover, the cost would certainly increase - a cost basically paid by EU-15 consumers (and taxpayers).
>
> Possibly this negative situation may be turned into something positive, and therefore this would be probably the right time and a unique occasion, if CAP could undergo a process of radical change toward a more sustainable system both for agriculture and rural development."[5]

Segrè and others refer to the development of CARPE[6] as a possible alternative, cf. Part A.II.

A.I.1. Economic and Financial Impact

The Danish Institute of Agricultural and Fisheries Economics (SJFI), among many other research institutes, has assessed the economic consequences of Enlargement for CAP. According to SJFI, the economic consequences of extending the direct payments from CAP to PACs would create a 14-34% increase of the EU budget (for 3 different scenarios see SJFI 15/2000[7]). According to SJFI, "very large shifts in land use, e.g. wheat [would happen ...] due to the fact that CAP will not change Candidate Countries' border protection for wheat whereas the Candidate Countries' import tariff rates for other grains will increase significantly" (p.13) [and] "bovine meat more than doubles [...] the production of dairy products rises by one third... The size of the direct payments will significantly affect the use of ... land. The growing area will expand between 35% and 50% depending on the level of direct payments. The CAP budget will grow between 14% and 34%, ... especially Germany will have to pay". According to SJFI, the effect of this would be an increase in prices of food and land.
The financial situation in the agricultural sector in Candidate Countries is very poor. In order to meet the CAP requirements and thus realise the scenarios described above, large investments must be made, notably in machines and facilities to treat (growing) amounts of liquid manure in agriculture itself and in hygiene and safety measures on farms and in the processing industry. IUCN[8] refers to Polish investment estimates of 6.5 billion Euro. REC surveys show that there are only limited commercial credit lines available for such investments and especially not for the agro-food sector, which is seen as not creditworthy.

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[5] Andrea Segrè in background paper to this part.
[6] Common Agricultural and Rural Policy for Europe.
[7] http://www.sjfi.dk/engelsk/index.htm.
[8] IUCN background paper to this part.

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Farm size and lack of land reform are effective barriers to reform

Poland, Romania and Bulgaria have many small private farms, which is seen as a major barrier to attracting investments. Three examples may illustrate the situation:
Bulgaria, on the other hand, has also a large proportion of collective farms working on state-owned land, but neither the Bulgarian government nor foreign investors have shown any willingness or ability to invest in major changes on these large farms. In Bulgaria the situation is the same as in Poland and Romania (small holdings). There are cooperatives, but on private land. The cooperatives, however, are managed by the old personnel, who is unprepared for market conditions. A lot of the equipment and buildings are plundered. The major problem in Bulgaria currently is the very fragmented land distribution. Even though a single owner can have 100 ha, those are scattered across different areas.
Because the process of collectivisation of individual farms was never completed in Poland, there are over two million farms. In Poland, many small farms produce very little that is sold to market. This problem is illustrated by current estimates, which suggest that, of Poland's two million farms, only about 150 thousand are ready to compete within the EU.
The Hungarian case of large pig farms illustrates the interconnections between farm size and land reform: in Hungary land cannot be owned by other than Hungarian private persons. This endangers the continuation of industrial pork production in the old, formerly state-owned pig farms, which have difficulties now in managing their liquid waste. Formerly they (the state) owned the surrounding land and they disposed of liquid waste by pumping it directly into specially designed poplar (and other types of) forests and onto surrounding land. Now many private owners wish to prevent the big farms from having their pipelines on their land, and the poplar forests cannot be retained because some owners refuse to accept the liquid manure. So the farms must invest in liquid manure treatment solutions. An estimate for one such farm in the village of Szil suggests that it would take an investment of approximately 1 million Euro to solve the problem using biogas and nitrogen reduction methods for a farm, which produces 10,000 pigs per year[9].
The Hungarian governments after 1990, like in other PACs, wish to protect the many smallholders against large capital interests, who could otherwise have taken over agricultural land. Land can only be owned by Hungarian private persons, and no foreigners and legal entities are allowed.

Foreign Direct Investment and domestic investment

Foreign direct investments have mostly been attracted to the food-processing sector and to the retail sector. In this sector, only few investors have been interested in the core business of treatment of meat, vegetables and dairy products, whereas the focus has been on tobacco, beverages and confectionery. It seems also that the trend is that foreign investors are reducing their investments, especially in the most developed PACs. In this context, it must also be taken into account that the competition for capital (both foreign and national) is extremely hard due to the extraordinary rapid growth of the industry and services sectors. REC surveys (The Future of Environmental Funds in Candidate Countries, Facilitation of Eco-efficiency Finance) have shown that commercial finance does not consider farms (and indeed most enterprises) creditworthy.

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[9] Looking at this investment from a national policy point of view, the following analysis was made: Given the existing prices for electricity there is a need for a 20% subsidy to finance the biogas investment (to break even). Assuming a 20-year lifetime for the biogas system, the price per pig would rise (200,000 Euro:20 years= 10,000 Euro/year = 1 Euro per pig). For Hungary, which has some 200 of these farms, a national program would claim a budget of 200 million Euro and a subsidy of 40 million, or 2 million Euro per year for 20 years.

However, it should be mentioned that the vast majority of FDI funds has been directed into the agro-processing industry, rather than into primary agriculture. This was because, while penetrating these emerging markets, they aimed to satisfy growing demand for high value-added food products, such as confectionery, ice cream, and beverages. Within agro-industry, most FDI has been directed into the sugar and confectionery, the tobacco, the soft drinks, the brewing and the dairying sub-sectors. For instance, meat processing is not attracting too much interest and is left to domestic producers. Nevertheless, the foreign investors continuously acquire new companies in these countries. In particular, the already penetrated ones expand their business, leaving no room for the newcomers and making it difficult for the domestic ones to compete in the market.

IUCN, Poland: "FDI works through training, machinery, R&D, seed/fertilizers/fodder. Big domestic companies have regrouped to meet the foreign competitors.

The investments in agriculture have dropped by four/fifths for the period 1989-1999 according to the report by the Agricultural Committee at the OECD. While in 1990 the share of agriculture in total investments in Bulgaria was 9.8%, in 1999 it was only 2.5%.

As a consequence, we can conclude that the large foreign firms control the farmers, whereas the domestic large firms, because they are still developing their technical and managerial skills, try to control the farms. Yet the degree to which the farms are controlled by the foreign large firms is surely higher than that of domestic large firms.

There has been funding from the supranational organisations to improve agricultural conditions, however there are doubts as to how this funding is turned into successful projects and provides the expected full benefits, due to lack of reliable monitoring. To the extent that farms and/or farmers are being 'captured' by large firms in the private sector, both suppliers and retailers, the role of public-sector organisations may be expected to play only an incidental role.

As regards the direct role of hypermarkets, because of lack of information on the relationship between grocery purchasing department and farmers, we are able to provide information only about the indirect role of hypermarkets in controlling the farmers... In compliance with the agro-food chain, the pressure put on the own-label producer influences the farmer in terms of hygiene, quality, quantity and price at the upstream end of the chain.

There have been interventions by governments to modernise and regularise the farms and farming methods according to the requirements of the market economy, but these efforts are not considered to be as extensive or effective as they should be by the foreign investors. This causes the foreign firms to keep their supplier farms under their control. For the kinds of farms included in this part of the Report's enquiry, it may be said that privatisation (market orientation) and liberalisation (freer trade and investment flows) are having a marked effect through their impact on the supply chain. The role of European and other public-sector agencies may be expected to focus increasingly on 'rescue' operations directed at those large parts of the agricultural system, which remain uninfluenced by these private-sector pressures. The CAP in whatever guise it is implemented may be counted among possible measures of this kind. It therefore runs the risk of protecting those elements which have been or are finding it difficult to come to terms with market rule."

It seems that PAC farmers are caught in a deadlock situation: they must invest to comply with EU Enlargement acquis for agriculture and environment; one means to justify such investment would be the expectation of receiving direct payments via CAP, but that would entail a severe financial crisis in the EU "financial perspectives". Secondly, to attract capital investments, land reform is needed, but land reform would seriously decrease the livelihoods of the many subsistence farmers, who on the other hand constitute an important political force due to their number.

Summing up, the enlargement of the CAP regime to PACs seems not to be feasible from an economic and financial point of view.

It would be opportune and relevant for economical analysis to introduce a point related to agricultural production and its evolution in the context of applying of CAP in the three countries, related to[10]:

- average production;
- cultivated areas for main crops;
- ratio: livestock breeding/agricultural crops;
- production means, etc.

A.I.2. Social impact

It has been mentioned many times that the share of agriculture in total employment is large in PACs. In Bulgaria for example: "The share of agriculture in total employment in Bulgaria has increased in the last 10 years from 18% to 25.8%. The major reason is the decreased employment opportunities in other sectors and especially industry. However, the income of those employed in agriculture does not increase, but remains low, compared to other sectors. The greatest discrepancy was recorded in 1996, when the annual income of those employed in agriculture was 31% lower than the income in other sectors. In 1999 the agricultural workers received remuneration of 10% less than that in other sectors, the report by the OECD reveals, based on data from the NSI" (Agrolink).

The same trend is seen in Romania, and for the same reasons. Furthermore, there is a trend toward the aging of the rural population. In rural Romania the share of the population above 50 years is 68% (of which half is above 65 years), whereas in urban areas this age group makes up only 38% of population. This has several implications: firstly, it means that quite a few farms are set to change owners because of retirement; secondly, the motivation to change farm practices may be rather low; and thirdly, the ability and willingness to invest in the farms must be assumed to be low.

To be mentioned that in Romania and Bulgaria, it is noticed for the last period of time the phenomenon of migration of population from urban to rural areas owed to the loss of opportunities from industry. However, this phenomenon cannot produce major changes in the present situation of agriculture in both countries.

Today a high share of household consumption goes into food consumption, e.g. in Romania 55% and in Poland 34%[11] and food prices are set to grow with CAP[12]. Given the current situation, and expected introduction of CAP, it seems inevitable that many PACs will be split into a more impoverished subsistence sector, a relatively small CAP-orientated farm sector, and an urban population which increasingly will buy foreign/imported foodstuffs.

The tendency in the EU is that 20% of farmers receive 80% of direct payments. Continuing this trend would aggravate the situation of the many subsistence farmers. With investment flowing into urban centres and larger farms, the rural countryside is set to deteriorate further. On the other hand, fewer land-owners may take over more land, thus squeezing the small subsistence farms.

In the context of an integrate analysis of the agriculture situation with the rural development (which is one of the main principles of CARPE as an alternative to CAP), the opportunity of introducing of a short analysis of alternative economical activities existent and possible to be undertaken in rural areas, is good to be analysed. (referring to the alternatives to small subsistence agricultural farms as: rural tourism, handicrafts, etc.)

[10] All these can be found in the Romanian Report in Part I point 2.
[11] DG Agriculture, homepage.
[12] Eva Rabinowicsz and SJFI.

A.I.3. Environmental Impact

The environmental impact of farming in PACs during the past 20-30 years has had both positive and negative aspects. During the regime of the planned economy, many countries suffered greatly from malpractice, causing degradation of soil and fertility as well as of human resources. Combinations of drought and floods due to climate change, large-scale deforestation and canalisation programs have made large areas, e.g. in Romania and Poland, less suitable for farming. The lack of finance, of machinery and storage facilities has led to excessive nitrogen contamination of rivers and groundwater from liquid manure spills. Especially in Poland, the quality of water has rapidly deteriorated over the last 25 years: Karaczun et al.[13] report an increase of substandard water from 33% in 1974 to almost 90% in 1995. Karaczun estimates that it will take an investment of 3 billion Euro to remedy the water treatment problem in Poland, much in line with the estimates made by IUCN in Poland. The same trend holds true for other countries as well, but with different impact due to differences in groundwater sources, geology and farming practices. Further, the lack of storage and treatment of liquid manure makes the farm sector one of the largest contributors to emission of greenhouse gases (methane). The Slovak Ministry of Environment[14] has made recent estimates that 14% of all greenhouse gas emissions (methane) from Slovakia come from farming. During negotiations about the CEEC compliance with the environmental acquis, a sum of 80-100 billion Euro is the latest estimate[15]. Of this sum, about half is related to wastewater treatment, but mainly in cities and towns with more than 2,000 inhabitants (PE). A large proportion of the population lives in towns and villages, which are not covered by the wastewater directive. This means that the focus of national and international finance probably is going to be directed to wastewater treatment in the "directive" areas, leaving agriculture and villages behind in the competition for scarce capital.

If we add to this analysis the projection of SJFI that the production of bovine meat could double and dairy products could rise by more than one third, then it becomes clear that the environmental impact would increase accordingly.

Extending CAP to Candidate Countries is expected to imply also the adoption of EU practices in farming: intensification of farming, larger farms, increased use of fertilizers and pesticides. The implementation of these practices would probably come prior to investment in wastewater treatment, which would imply a risk of increasing the environmental impact from farming, until investments in environmental measures could reduce the impact.

The positive side of the environmental impact of farming in Candidate Countries is that fertilizer, herbicides and pesticides have been used to a much lesser degree than in the EU, in the last years. Romania and Bulgaria for example report that levels of artificial fertilizers are more than four times lower than in the EU and these levels are still falling. The low levels of pesticides are among major reasons why consumption in Romania for instance has dropped to a 20% level during the 1990s. The reason is the high cost of artificial fertilizers and pesticides and the growing number of subsistence farmers. The large collective farms in Bulgaria (and the numerous small private owners) have also reduced their use of fertilizers. Apart from the fact that nitrogen impact thus has been reduced to some extent, this also implies that the soil should be easier to convert to organic farm practices. The low levels of pesticides are a major reason why the Candidate Countries still have a richer biodiversity than the EU. Furthermore, most Candidate Countries have protected sensitive areas as "national parks", which contribute to European biodiversity in an unparalleled fashion.

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[13] CEESA, http://www.ceesa.de/_ceesa_frame_ace.s.htm.

[14] Air Pollution in the Slovak Republic, Slovak Hydrometeorological Institute and the Ministry of Environment, 1999.

[15] http://europa.eu.int/comm/enlargement/index.htm.

Opportunities for Organic farming

The number of organic farms has grown rapidly during the last 5 years in many PACs, but there is hardly any substantial amount of certified organic farming yet, although some of the basic conditions are met due to low levels of usage of fertilizers, pesticide and herbicide.

The project team has investigated the existing and possible future of organic farming as a core concern of future rural development in PACs. It is clear that the existing CAP puts increased focus on organic farming, especially after the recent problems in the EU with intensive farming. But still organic farming and the provision for support remains marginal in the existing CAP. Our aim was to assess the feasibility of a change of priorities so as primarily to push for organic farm practices in what earlier was called CARPE. The reasons are quite clear: organic farming creates less environmental impact, is labor intensive, is better adapted to the low level of financial capacity, and perhaps most importantly, the preconditions were laid down during the last 10 years due to reported low levels of usage of fertilizers, pesticides and herbicides. The main barriers for more organic farming relate to the prices of organic farm products and the lack of an appropriate structure for training and certification in most Candidate Countries.

The project team has tried to locate studies of the economic impact of introducing organic farming in Candidate Countries but found nothing relevant. The following extracts from the country background reports for this part show that organic farming is still not of any serious importance, but that the market might well develop rapidly under the right political and economic conditions:

IUCN, Poland: "Since 1993 the Ministry of Agriculture has funded soil and water analysis. In accordance with an Agriculture Minister directive, in 1998 organic farm inspections were funded by the State.

Despite the first state subventions - reimbursement of the costs of soil analysis since 1993 and of the inspection costs in 1998 - the number of certified farms increased very slowly in the last three years. Based on a review of subvention systems in different EU countries, a governmental Working Group proposed direct subsidies to farmers in the second year of conversion and in the first year of the certification. These systems went into effect in 1999. In 2001, the subsidy levels are as follows: from 36 Euro per hectare of meadows and pastures in conversion and 29 Euro for certified organic production, to 144 Euro per hectare of berry fruits orchard in conversion and 108 Euro for certified berry orchards." [16]

The market share of certified organic food products in the domestic market is very small. On the one hand a proportion of certified products is sold as conventional products and on the other the shopkeepers are looking for a stable supply of organic products such as fresh vegetables and fruits, dairy products and bread. Organic products were first offered in the Warsaw shops as early as 1989. Nowadays about 200 shops all over the country sell a wide assortment of both Polish and imported, fresh and processed organic products. Export of organic products from Poland is still in its infancy. A few exporters sell fruit for processing (frozen black and red currants, strawberries, wild fruits, canned cucumbers and coffee grains). Lack of organisation of the small farms is the one of the biggest barriers to the development of the export sector.

There are big expectations of a rapid growth in the number of organic farms. Despite the subsidy system, and the effects of implementation of the act on organic farming, the market will play the most important role in any future development of organic farming. It is essential that the farmers stabilise their market position, as the subsidy is not intended to be a source of income, but rather help to cover extra costs connected with organic farming (e.g. control costs, time for special documentation). The market is promising: according to a consumer poll in 1998, 40 percent declare that they are ready to buy organic food, if it is available in their regular shop."

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[16] According to CEESA, these subsidy levels are expected to double the number of farms before 2010.

Agro-Link, Bulgaria: "Opportunity for development of the Organic agriculture:

1. The passing of Ordinances No 22 from 4 July 2001 and No 35 from 30 August 2001, which are fully harmonized with the EU legislation, provide good conditions for rapid development and increase of the number of producers and acreage with organically cultivated products.
2. Opportunities for accreditation of Bulgarian certifying agencies and control bodies are also created.
3. The major strengths of the current status are that the costs of conversion to organic agriculture are relatively low due to the low-input agriculture practised in the last 10 years (for lack of financial resources), the extensification of agriculture, as well as the small-scale structure of holdings. Currently one of the major costs is the certification.
4. The relatively large number of protected areas creates conditions for the development of organic agriculture in them and at their border (buffer) zones.
5. In the last year interest has been created (although still insufficient) for organic products in producers and consumers, mainly due to the work of NGOs and the media.
6. There is a persistent interest on the part of foreign organisations, companies and entrepreneurs in growing organic products in Bulgaria.
7. There are favorable natural conditions for the growing of organic products, whose demand is high in the European market.

There are perfect conditions for integrated development of eco- and rural-tourism, alternative cultures and organic production. Especially favorable are the numerous and varied mountainous regions. There are several successful projects in this area and programs have been developed for the sustainable development of rural areas."

Although it seems that in Romania have not been registered significant progresses in the field of "Organic farming" comparing to Poland and Bulgaria, it seems to be relevant to be mentioned the following:

- legislative measures- UOG no.34/2000 regarding ecological agro-food products, which is fully harmonised with EEC Regulation no.2092/91 and EEC Regulation no.1804/99;

- the existence of numerous areas in the rural areas (especially in mountain areas) in which organic agriculture at a small scale has always been practiced and which offers organic products through local markets.

Production of Industrial Non-food Crops

Another strategic option for the Candidate Countries' rural development is increasing production of industrial crops. The main areas of interest seem to be in the (renewable) energy sector and in (sustainable) production of cellulose.
The situation and the prospects for these alternatives are like those in the rest of the world. It is technically feasible to produce and conserve energy in a more sustainable way than today's overriding usage of fossil fuels. But the prices of fossil fuels are kept artificially low due to "externalisation" of the real (environmental) cost of usage of fossil fuels, which means that use of renewable energy sources will be feasible only if there is a substantial change of political priorities and subsequent taxation and/or pricing[17]. Such changes naturally run up against very strong economic lobbies, e.g. in Poland the hard coal lobby.

[17] ExternE project, see earlier.

The use of bio-diesel and bio-ethanol for transport purposes is subject to the same debate. Obviously a very strong oil industry is not interested in changing its position in a booming CEE market. Rape would be a main source of bio-diesel, whereas crops such as sweet sorghum would be a very rich source of ethanol. A PHARE study in Hungary revealed that the yields of sweet sorghum in the area are much higher than those gained from maize in the USA, where maize farmers have associated to create more than 60 bio-ethanol factories[18]. Bio-ethanol seems to be an appropriate substitute for MTBE (an environmentally hazardous additive in unleaded petrol[19]) in petrol. The European Environmental Bureau, EEB[20], however, seems to be of another opinion according to recent press releases:

> "This proposal makes no economic or ecological sense," says EEB Secretary General John Hontelez; "it will impose high costs on taxpayers via agricultural subsidies without producing benefits, and in continuing to promote intensive agriculture, continues to attack our natural ecosystems, destroying the ecological value of set-asides."
>
> The proposal, which offers tax breaks, would not even always benefit EU farmers. Raw materials for the production of bio-fuels are often imported, such as palm oil (used to produce bio-diesel) from Malaysia, and bio-ethanol from Canada, Thailand, Brazil and the U.S. Under WTO agreements, these products would enjoy equal treatment with EU products; refiners would buy the cheapest products (often not EU ones), and the imports would enjoy the tax benefits.
>
> EEB Scientific Adviser Dr. Karola Taschner says a particularly worrying aspect of the proposal is its use of "set-aside" land for the production of materials for biofuels. Set-asides, which normally have a positive effect on the environment, would be used for non-food crops, on which a wide range of pesticides would be used; the pesticide use on food crops is far more strictly regulated than that relating to non-food crops. This makes non-food crops on set-aside land even more unwelcome.
>
> As well as putting biodiversity at risk, the climate change potential of promoting biofuel production is by no means positive, says Dr. Taschner: "This produces no or little climate change or CO_2 benefits. Firstly, the production of biofuels is heavily dependent on the input of fossil fuels. Secondly, many life cycle analyses have been conducted and concluded that the potential of biofuels to combat climate change was often negative or neutral right away. This is also not cost effective compared to other options, like using public transport, smaller cars, or improving engine technology."

The EEB is here mainly concerned with the production of bio-diesel, whereas the production and use of bio-ethanol is less of a cause of concern, given that such crops are produced under organic farming principles. Also it seems that EEB are assuming the use of bio-fuels *caeteris paribus, i.e. all other factors unchanged, especially with an unchanged CAP.*

One further area of interest is the production of cellulose using hemp and other renewable sources, thus saving precious trees and avoiding deforestation. Again here we have a relatively strong lobby of foresters and paper industry against such change.

All of these three uses could create a boom of rural development initiatives, and the added advantage is that the investments would be localised and thus create processing industries in the rural countryside. New technology and innovation would be needed to improve the performance of the available

[18] http://www.ethanol.org/.
[19] http://www.dhs.cahwnet.gov/ps/ddwem/chemicals/MTBE/mtbeindex.htm.
[20] http://www.eeb.org/press/biofuels-s18.htm.

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technology. The above mentioned PHARE study showed that new processing methods were needed to utilise the opportunities mentioned. Examples include:

- a change of cellulose production technology which could efficiently handle the longer fibres of hemp compared to wood pulp
- optimisation of biogas production, e.g. by using certain microbes, as researchers at Szeged University in Hungary have shown
- optimisation of wood chip burners
- use of hard coal in so-called bio-coals
- new ways of harvesting sweet sorghum so as to separate leaves and stalk efficiently (or sugar from chlorophyll)
- It is clear that the above-mentioned alternatives are real, in much the same way as wind power is growing to become a major contributor to power generation in the EU. The alternatives would require a change of priorities.

Poland[21]

At the present moment, it appears that spirits production for industrial purposes, as additives to fuel, is of great importance for surplus stocks of agricultural products in Poland. Other examples of non-food use of agricultural product market penetration in Poland are: pilot installations of rape methyl ester production, starting up the straw-fired boilers program, development of biogas plants. In Poland non-food (industrial) use of raw materials of agricultural origin is more and more frequently perceived also as an element of the environment protection program.

Bioethanol

In the beginning of the 1990s a huge overproduction of alcohol, resulting from the necessity of processing a surplus production of cereals, potatoes and beet molasses, caused our country to undertake the production of gasoline with bioethanol (dehydrated ethyl alcohol) as an additive. Wider usage of gasoline with ethanol blends was possible after the introduction of new standards for engine fuels in 1992.

Bio-ethanol used as one of the possible additives to gasoline is increasing the octane number as well as improving ecological properties of gasoline, especially leaded types, during the combustion in engines. ..[...]

Another very important element stimulating development of bio-ethanol-gasoline blends production is the reduction of excise taxation for such gasoline introduced by the Ministry of Finance. [...]

Another very important aspect is connected with the development of rural areas. Alcohol production located in rural regions can be an element of rural industrialisation. Especially at the moment when unemployment is observed in some rural regions, a diversification of agricultural production is giving possibilities for additional employment, additional sources of income for the State and a local budget (e.g. from taxes), and increased demand for services in rural regions.

Biodiesel

In the mid-90s division of CPN S.A. in Wroclaw was strongly interested in the development of the bio-diesel market and they introduced promotional production and sale of diesel fuel with the addition of vegetable-origin fatty-acid-methyl-esters.

In respect of the actual state of the art and with actual price relations (cheap diesel fuel in world markets - 120 USD in the ARA market and high prices of rapeseed), a substitution of mineral energy products with rape-based products on a large scale is not possible in our country at the moment. In

[21] Magdalena Ragulska IBMER, Andrzej Sobieszek MriGZ.

the present situation there is a need for large expenditures from the State budget for a rape biofuel production subsidy.

Solid biofuels - straw, wood

Combustible biomass consists mainly of wood and straw. [...]. Altogether ca. 7.5million m^3 of wood fuel can be used for energy purposes per year. In rural areas, wood is usually combusted in traditional stoker-fired devices constructed for the combustion of other fuels. A consequence of this is an adverse effect on the environment due to emissions of gases not combusted completely and nitrogen compounds (NOx). The problem may be solved by using wood-fired boilers, the power of those available at the market varying from a few kilowatts up to 3 MW...[...]

Another kind of biomass which may be used for energy production is straw from cereals, oil and leguminous plants. Annual straw production in Poland is equal to 25 million tons. [...] production to be noted.

Biogas

In our country various research and implementation projects are being undertaken with reference to installations designed for methane fermentation of organic wastes. The aim of these activities is to generate biogas and reduce environmental dangers.

Romania

The domestic production of cellulose is based first of all on wood (spruce, pine, beech) as raw material, then reed. Alternative sources of hemp, other technical crops and agriculture' residues (cereals straws) for cellulose industry use is rather theoretical. Only few factories facing up the crisis of wood materials have already adopted this alternative. The practice of burning of stubble and cereals straws, for the purpose of the increasing of soils' fertility is still persistent in Romanian agriculture even it has been banned.

The use of alcohol (bio-ethanol) obtained from agricultural products as additive for gasoline represents a practice and alternative still unexploited at the level of the existent possibilities. The industrial ethyl alcohol is used mainly for food purposes. The same situation is registered in the field of biogas production, the residues from livestock breeding being used mainly for the production of natural (organic) fertilizers. Otherwise, the Romanian energetically industry uses mainly non-renewable resources (oil, coal and gas), nuclear energy (Cernavoda nuclear-power station), water courses energy (hydro-power station). The use of vegetal products for energy purposes is reduced only to wood for fire representing about 20% (3.0 mill. cubic m) of the entire quantity of wood exploited per year, and which is used mainly in households from rural areas.

A.II. CARPE instead of CAP?

Quite a few researchers have pointed out the un-sustainability of CAP especially in view of EU Enlargement. Below we have added Eva Rabinowicz's charaterisation of CARPE and Andrea Segrè's contribution to this issue.

A.II.1. Agricultural policy reform: a proposal (CARPE)

"There is no shortage of proposals for reform of CAP. The Governmental Committee on the Swedish view of CAP reform identified at least 20 different suggestions, ideas or visions emanating from the European Commission, professional agricultural or general economists, consumers' organisations, environmentalists, rural development groups, etc.

One suggestion for CAP reform was proposed by a policy integration group chaired by A. Buckwell. The author of this paper was a member of that group.

The group was asked to summarize the inconsistencies and problems of the present CAP and to define broad outlines for the preferred new integrated policy. The starting point of the work was a recognition that agricultural policy must adjust to new social priorities and channel much more of its attention to the twin challenges of international competitiveness and environmental awareness. It was recognised that CAP, in spite of the improvements made by the 1992 reform, has not achieved the correct balance between operational objectives and instruments. Thus, there is a need to push CAP away from being a sectoral policy for agriculture to becoming part of a set of territorial policies for rural areas.

The objectives of the new policy, which is called the Common Agricultural and Rural Policy for Europe (CARPE), is to ensure economically efficient and environmentally sustainable agriculture and to stimulate the integrated development of the EU's rural areas. Integration implies that the elements are to be more equally balanced than in the past. The aim of CARPE is also to remove many of the distortions and imbalances within agriculture which have overstimulated some sectors at the expense of others and pushed farmers away from producing high-quality, differentiated products. The principles that should guide CARPE are consistency with general EU goals and subsidiaries.

It is proposed that the policy will have four major elements: market stabilisation (MS), environmental and cultural landscape payments (ECLPs), rural development incentives (RDIs) and transitional adjustment assistance (TAA). Under the proposed policy, market support through common market organisations (CMOs) is expected to shrink further as prices are reduced to the world market level. The proposed policy does not offer direct income support to farmers, rather it tries to encourage farmers to earn decent incomes by supplying private and public goods and by undertaking activities in rural areas. While MS remains a sectoral and commodity-defined measure, ECLP and RDIs should be territorially defined and administered. Moreover, the first three elements should be enduring elements of the policy while the last, TAA, should decline as the policy takes hold.
MS aims to provide a safety net to commodities subject to uncontrollable market fluctuations, as greater instability than in the past can be expected. ECLPs are offered as protection against damage and depletion of rural resources and cultural landscapes of rural areas and to encourage enhancement of these resources. These payments are offered to avoid the possibility of there being an underprovision of environmental and landscape services. The proposal is to take a multi-tier approach. Tier zero is the conditions that farmers and all land managers have to respect without payment. Tier 1 is directed to farming systems that provide high nature value, which may well cover large parts of European territory. Tier 2 is concerned with specific environmental management practices which will generally involve more restricted areas and more intensive action on the part of managers in order to preserve or create environmental effects of greater significance. RDIs are concerned with all aspects of rural development, including agricultural development but the emphasis is on stimulating opportunities for non-agricultural activities for farm resources and for resources released from agriculture. The RDI program will build on and integrate actions that are currently available under objectives 1, 5a, 5b and 6. RDIs should in principle cover the whole European territory. It is proposed that the compensation payments are transformed to transitional adjustment payments. By emphasizing adjustment and the transitional nature of the payments it is argued that they are justified to help farmers to adjust to new circumstances without price subsidies and that they are not entitlements for continued support.

The general criticism of CARPE is that it is not specific enough. This has been done on purpose, to some extent. The policy integration group intended to present general principles rather than to sug-

gest a ready-made proposal. It can, however, be of some interest to offer some observations based on Swedish data and analyses which were made for testing the impacts of various policy options using an agricultural sector model. Some of the scenarios were close to the ideas underlying CARPE. The advantage of using Sweden as a test case is the great diversity of farming conditions within that country – from the fertile southern plains to arctic agriculture. The results are not published yet and are still preliminary. Price cuts and the removal of all existing support have been estimated to have a negative impact on agriculture which at the aggregate level appears to be manageable (a 20 percent reduction in employment) but would be devastating for less-favoured areas. (In the northernmost region only 18 percent of employment in agriculture will be left.) Flat arable land payments made to all land and based on the fulfilment of some basic environmental conditions combined with special support to more environmentally sensitive areas appear to give higher achievement of the objectives while using a simpler and cheaper policy. The results are too preliminary to prove the case but indicate that it may be possible to simplify the policy and achieve better attainment of relevant social goals.

CARPE and eastern enlargement

Would CARPE constitute an improvement on CAP? In the first place it should be pointed out that CARPE intends to enhance welfare among both the present members of the EU as well as future member countries. ECLPs are justified to counteract an underprovision of cultural and environmental services, in other words, to correct an externality, while RDIs are intended to stimulate a self-sustaining process of rural development and growth. It is generally agreed that such a policy would be especially beneficial in the Candidate Countries and superior to the present CAP. In several of the Candidate Countries, most notably Poland where 25 percent of the workforce is still in agriculture, there is a great need to develop alternative opportunities for employment in rural areas. Moreover, such a policy would also be more equitable by avoiding high prices and distributing benefits to the rural population, not only to farmers. By eliminating supply management, structural change could proceed unhampered. The tricky issue is TAA. If such payments are to be extended only to the present members, they must be strictly decoupled and temporary. The last point relates to the issue of credibility; the payments must be designed in such a way that it is credible that they will not continue for ever.

Finally what are the lessons from previous enlargements? A long transition period for agricultural trade and price policies was used for the enlargement with Spain and Portugal. The latest enlargement gave birth to a new objective for structural funds. The idea of creating new common measures to solve the problem of arctic agriculture was rejected, but Finland and Sweden were allowed to use national support, provided that production in the areas in question would not expand. The existing measures were, moreover, used in a creative way. Regulation 2078/92 was to some extent used as a substitute for support to weak regions. Arable land north of the 62nd parallel was equated with mountainous agriculture and the 62nd parallel was moved south to coincide with administrative units. Thus, it can be concluded that to adapt and differentiate the CAP to meet the challenges posed by forthcoming enlargement would not be a radical departure from current policy principles (European Economy, 1996)."

A.II.2. Is CAP still sustainable? [22]

"Strengths, weaknesses and constraints related to the CAP reform process and the Candidate Countries accession to the EU discussed above [...] raise some important and actually very urgent questions, that need to be answered [...]. Schematically one could ask whether, as it is at this stage, CAP

[22] This paragraph is taken from Andrea Segrè's background paper to this part, where the list of references is reported.

would be sustainable in the EU itself, and when the accession process would be over (in principle very soon) in the Candidate Countries.
After the "scandals" related to agriculture and food (foot and mouth, BSE, dioxin, GMO and the like), EU public opinion showed a negative attitude toward CAP, that is considered a very costly policy (50% of the EU budget) and unable to protect from a negative impact on food safety and quality, on environmental pollution, on animal welfare, on rural and agricultural jobs.
On the other side, if CAP is applied as it is in the Candidate Countries, all these problems will remain unsolved and, moreover, the cost would certainly increase - a cost basically paid by westerner consumers (and taxpayers).
In summary there are at least four compelling reasons for reforming CAP:

1. Budgetary pressures. The cost of CAP is enormous. In excess of 40bn Euro - in excess of half of the total EU budget. To put that into context, CAP costs 100 times more than the EU's youth, culture and education budget; 300 times more than the EU's environment budget; and 2,000 times more than the EU's consumer protection budget.

2. EU enlargement. Simply the EU can not afford to pay all PAC's farmers the similar kinds of support that EU farmers have received. The cost of expanding the EU to Poland, Hungary, the Czech Republic and Slovenia - just four of the 12 countries - is estimated to be another 15bn Euro per year.

3. World Trade Organisation. The EU is limbering up and wants a new trade round of the WTO. If it is to do that, it knows it will have to give significant ground on agriculture and further decouple agricultural support from production.

4. Consumers. Consumers pay three times over for food. Once through the shop price. Second through the taxes that are being used as a direct support for EU farmers and thirdly for the external costs imposed by the CAP on the environment, rural communities and human health.

Possibly this negative situation may be turned positive, and therefore this would be probably the right time and a unique occasion, if CAP could undergo a process of radical change toward a **more sustainable system both for agriculture and rural development**.
Although very much (ab)used, the concept of "sustainability" seems to better address the current issues under discussion. As is well known, sustainability refers to the use of resources, human, natural and man-made, in ways that allow current generations to satisfy their needs without jeopardising the capacity of future generations to meet theirs. As such, sustainability is a resource-oriented, long-term and global concept. Sustainable development, and sustainable agriculture in particular, have been the subject of numerous conferences and discussions over the last ten years, and have been enshrined as guiding principles in several international agreements and action plans.

Multifunctionality is not sustainability

The recent CAP reforms, namely MacSharry in 1992 and Agenda 2000, addressed some important issues and provided changes and adjustments. A very important step was the introduction of the notion of multifunctionality, that basically refers to the fact that an economic activity may have multiple outputs, and by virtue of this may contribute to several societal objectives at once. Multifunctionality is thus an **activity-oriented** concept that refers to specific properties of the production process and its multiple outputs.
On the other side, the concept of sustainability is essentially **goal-oriented**, implying that resources should be used in such a way that the value of the entire stock of capital (including its option value) does not diminish and an indefinite stream of benefits can be obtained. The goal-oriented element

may not always be evident, such as when the purpose of the exercise is to explore whether a particular type of agriculture is currently sustainable or not. But there is always an underlying assumption that the ultimate objective is to achieve sustainability. If an economic activity is not compatible with sustainable resource use, there is a problem that needs to be addressed.
By comparison, if an activity is not multifunctional, there is no imperative to make it multifunctional.

Toward a Radical Change of the CAP?

All this said, what we probably need now is a reconstruction - a change in thinking and practice - of CAP. In this respect sustainable agriculture should become the primary objective for agricultural and rural development policy, both in the Western and the Eastern part of Europe. A more sustainable agriculture seeks to make the best use of nature's goods and services as functional inputs. It does this by integrating regenerative processes (such as nutrient cycling, nitrogen fixation, soil regeneration and natural enemies of pests) into food production processes. It minimises the use of inputs that damage the environment or harm human health. In other words, it is agriculture that minimises negative externalities and maximises the positive side-effects.
To move towards the goal of sustainable agriculture Pretty (2001) proposed for the UK a five-point national plan. This approach could be considered as a very useful 'platform' to stimulate an EU debate and catalyse a reform process, as actually happened just after the MacSharry Reform with the group co-ordinated by Allan Buckwell (CARPE).
A further elaboration of the following points, summarized from Pretty (2001), considering both the EU and CEEC perspectives as well as the WTO negotiations, might result in a very useful exercise.

Switch subsidies from production to the multifunctional side-effects of farming

Both the CAP and national subsidies need to be entirely switched from being production-based to providing positive incentives for land management with social, economic and environmental benefits. This can be done by offering direct subsidies for adoption of sustainable methods. An important policy principle suggests that it is more efficient to promote practices that do not damage the environment rather than spending on cleaning up after a problem has been created. Some agri-environment schemes have been extremely successful at supporting farm transformations that produce both private benefits for farmers and public ones for the environment and rural communities. Farmers who produce public goods that all can enjoy, whether biodiversity, landscapes, clean water or flood protection, deserve public support. Establishing this clear principle inevitably leads to the need for fundamental reform of the CAP.
In particular, such subsidies must provide preferential support to family farms over large agri-businesses. Current agri-environmental programs help large farms more than small farms. Operators of large units can afford to farm at least some of their land less intensively, in return for stewardship payments, whereas for many operators of small units, the payments are not generous enough for them to be able to forego intensive production techniques. Support payments must be designed to benefit smaller farmers.
Current agri-environmental schemes have contributed greatly to 'greening the edges' of agriculture. Losses of bird habitat, historic features, and natural and scenic landscapes have been substantially reduced. Where most of these schemes fall short is in restoring the farmland biodiversity that was lost during the twentieth century. Where mixed crop-livestock farming has dramatically decreased and crop systems have narrowed to two or three main cash crops, the schemes have failed to restore diversity. What is needed is an aggressive effort to restore legume-based rotations in arable areas through the creation of a targeted scheme to help underwrite this effort. Such a scheme would have multiple benefits, one of which is the reduction of externalities caused by high application rates of inorganic fertilizers and pesticides, a reduction in soil erosion and related productivity losses, and beneficial wildlife habitat provided by a more biologically diverse crop rotations.

Develop a new 'Greener Food Standard'

Organic farming is now established in the market-place. But not all farmers feel able to make the jump in practices and thinking to organic farming. The price premium for organic food also takes it out of the reach of many consumers. There is therefore a strong case for a new intermediate food standard – what might be called a Greener Food Standard - which would push the market towards more sustainable environmental practices than the current norm while not requiring the full commitment to organic production.

There is of course already a variety of food standards in the marketplace. But none has the integrity and consumer trust associated with the 'organic' label. Indeed, the proliferation of such standards makes most consumers simply confused. A single intermediate standard accepted throughout the industry – in the way that European 'eco-labels' are now used in other sectors – would eliminate such confusion, giving consumers a powerful steer towards more sustainable food choices. At the same time, it would give farmers more incentive to improve their environmental practices. Such a standard should be based on so-called Integrated Farming Systems, which draw on best practice from conventional and organic methods and integrate farming and land management practices across the whole of each farm.

Clearly the definition of a Greener Food Standard would need detailed negotiation among all stakeholders in the food industry – farmers, retailers, consumers, NGOs, government – but there is every reason to believe that agreement could be reached.

A Greener Food Standard, based on a substantial transition towards sustainability – the reduction of external costs and the increase in external benefits - could go a long way to shifting both farmers and consumers towards a more sustainable system.

Use the tax system to encourage more sustainable farming

Environmental taxes seek to internalise the environmental costs of production, requiring polluters to pay for the damage they cause and thereby providing incentives to reduce it. The market prices for agricultural inputs and products do not currently reflect the full costs of farming. Such green taxes offer the opportunity of a 'double dividend' by cutting environmental damage, particularly from non-point sources of pollution, whilst promoting welfare. Environmental taxes have begun to be applied in many countries: pesticide taxes in Denmark, Finland, Sweden and in several states of the USA; fertilizer taxes in Austria, Finland, Sweden, and again several states of the USA; and manure charges in Belgium and the Netherlands.

One of the advantages of environmental taxes is that the revenues raised can be recycled back into subsidies for environmentally improved practices. In this way environmental problems can be tackled 'from both ends'. Use of the revenues of this way is also likely to increase the acceptability of the tax.

At the same time it is well established that organic farms and those adding value and/or selling direct to consumers create more jobs than conventional farms. These small businesses can be the drivers of rural economic growth. They should be rewarded with reduced tax regimes, through national insurance or council tax rebates. Small rural enterprises below a defined size would be eligible, and would therefore be encouraged to engage in employment-creating activities.

Develop new markets for positive side-effects of farming, particularly carbon

The 1997 Kyoto Protocol and the recent Bonn agreement have established an international context for the reduction of carbon emissions and increase in carbon sink through the principle of financial and technological transfers to land management. Agriculture can sequester carbon when organic matter is accumulated in the soil, and when above-ground woody biomass acts either as a permanent sink or is used as an energy source (biofuel) that substitutes for fossil fuels. There is now great international interest in carbon trading systems. These need actively to be developed to provide new opportunities for additional farm income, thereby 'joining up' the Government's climate change and

farming policies. Systems accumulating carbon also deliver many other public goods, such as improved biodiversity and clean water from watersheds, and policy makers may also seek to price these so as to increase the total payment package.

Establish a Royal Commission on Sustainable Food and Farming

Moving our food and farming systems towards sustainability will not be easy. The Government has announced its intention to set up a new Commission to examine the future of the agricultural sector. But a short-term enquiry will not be enough. This should be new a standing Royal Commission on the lines of the Royal Commission on Environmental Pollution. Its task would be to address how the sustainability objective in agricultural, food and rural policy can be achieved.

A Royal Commission on Sustainable Food and Farming would examine, for example, how agriculture can be better integrated with development and housing policy in rural areas on ecological principles, and how both better access to the countryside and better protection of important habitats can be achieved. There is a particular need to involve whole rural communities in participatory processes for rural regeneration. Rural economies benefit when stakeholders within the system are connected up so as to help create social capital. A Royal Commission could examine how new social institutions in rural areas might be encouraged, such as farmers' groups, community co-operatives, or community councils.

All this policy shift may have a positive impact not only in farming and consumer sectors both in the EU and in the PAC's but also to strength the EU (and PAC's as well) position in the current WTO negotiations as well as diminishing external costs (e.g. environment) imposed by the current CAP."

Part B: Human capital formation: Some Perspectives for Pre-Accession Countries[23]

As measured by conventional indicators of educational input and output, most pre-accession countries do not differ substantially from the EU average (B I). However, these measures may not capture the economically relevant stock of human capital, especially in formerly socialist Candidate Countries. East Germany's experience with EU accession provides some evidence that the stock of human capital of Central European economies could be grossly overstated by measures relying only on formal education and training (B II). These countries may in fact face a human capital deficit. However, there is very little empirical evidence from the experience of OECD countries that human capital formation can be easily supported by policy measures. Short run investments in human capital formation such as worker retraining programs have proved to be ineffective at best (B III). Long run investment in human capital formation would have to focus on schooling, but strong increases in educational expenditure did not boost the quality of European schooling in the past (B IV.1). To foster human capital formation in the long run, an efficient schooling system would be required that would set incentives to improve on student performance and to save on cost (B IV.2). The main conclusions for pre-accession countries from the experience of European countries are:

- Large-scale worker retraining programs should not be implemented due to their low cost-effectiveness.
- Higher educational budgets are unlikely to lead to improved student performance as long as schooling systems can be considered as inefficient.
- Reforming educational institutions should focus on creating transparent and competitive schooling systems.

B.I. Assessing the Stock of Human Capital in Pre-Accession Countries

Investment in human capital stands out as one of the most productive investments one can think of. Everyday experience confirms that better educated citizens generally have above-average incomes and below-average unemployment rates. And human capital may not only be productive from an individual point of view. Society at large may also benefit from public investment in human capital formation if a high level of education could produce a dynamic comparative advantage in high-technology sectors that are often held to be the major engines of future prosperity.

Beyond these purely economic considerations, there is an even broader argument for public investment in human capital formation: well-educated citizens are less likely to follow non-democratic ideologies. In this sense, public investment in education can be seen as a means to create democratic stability. And democratic stability may prove to be the ultimate necessary condition for sustainable long-run growth.

In this context, EU membership is likely to generate a positive growth impact in the pre-accession countries (PACs) because the implementation of a common set of laws and institutions may provide incentives to increase technological diffusion and to raise the accumulation of physical and human capital. However, whereas world capital markets could almost immediately provide any required investment in technology, buildings and structures, human capital formation has a much longer ges-

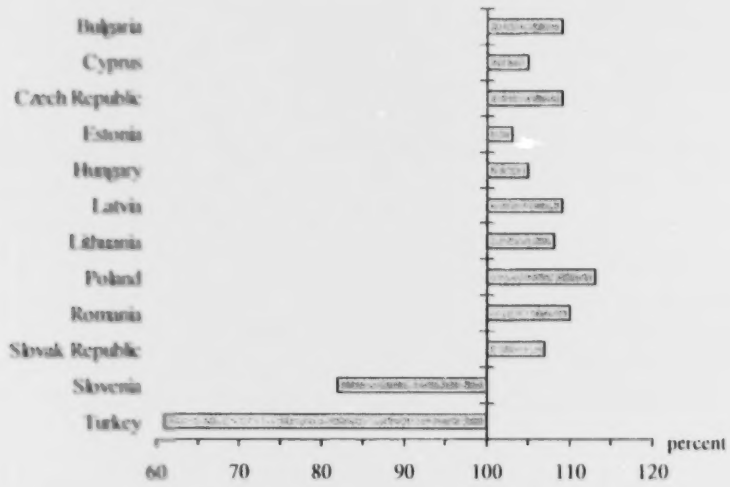
[23] Part B was written by Erich Gundlach , Kiel Institute of World Economics. The selected case studies on pre-accession countries were provided by the Institute for Technology Assessment and System Analysis (ITAS), Karlsruhe.

tation period and has to be financed mainly by domestic sources. Hence a low stock of human capital in PACs could prove to be a serious bottleneck for growth and development after EU membership.

Unfortunately, measuring the economically relevant stock of human capital has mainly relied on a very simple concept up to now. Most available cross-country estimates of human capital formation only consider measures of formal education. Such education-based measures can in fact account for a large fraction of the international differences in growth and development, especially across OECD countries (Gundlach et al. forthcoming), probably because on average these measures are highly correlated with other dimensions of human capital formation. For instance, additional dimensions of human capital that are regularly ignored in international comparison are the health status and the nutritional status of the workforce and, probably most important, the experience of the work force with implementing advanced technologies. Whether focusing on education-based measures could provide a reasonable picture of the available stock of human capital in former socialist countries, which dominate the present group of Candidate Countries, is an undecided issue up to now, not least because alternative measures are not available.

Figure 1 shows average years of education of the population aged 15 years and older in the PACs in 2000, relative to the population-weighted EU average. The EU average equals 8.7 years of schooling per working-age person. This value is set to 100 in Figure 1. Except for Slovenia and Turkey, all other PACs display a higher level of average years of education than the EU. According to this statistic, Poland's average level of education is about 13 percent higher than the EU average. What is also remarkable is the rather low degree of variation in average years of education (excluding Slovenia and Turkey), which is smaller than across EU countries. Taking average years of education as a proper measure of the stock of human capital, with two exceptions the PACs should perfectly fit into the EU.

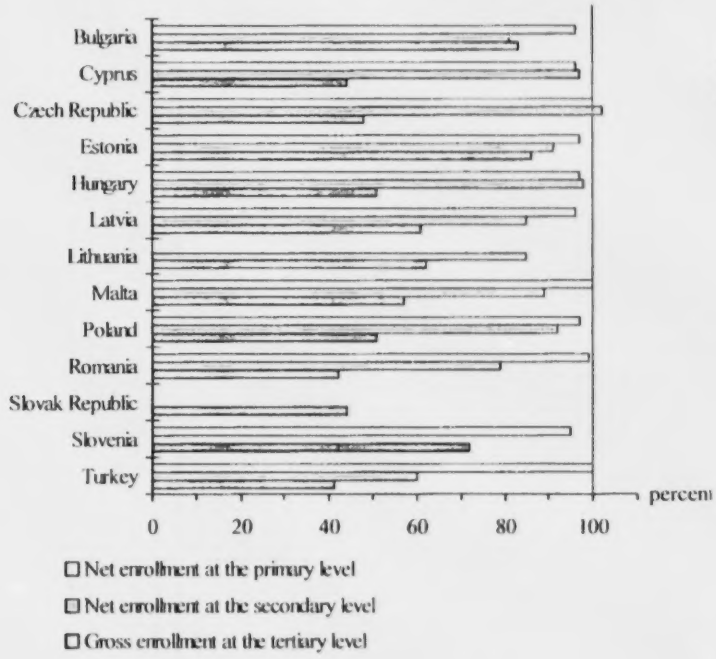
Figure 1: Average Years of Education in Pre–Accession Countries, 2000



[a]Population-weighted.
Source: Barro and Lee (2000).

However, it should be noted that the reported numbers for average years of education are mainly based on accumulated past enrollment rates. Given that there might have been a tendency to over report enrollment rates under socialism, the figures for average years of education may turn out to be inflated. Rather than focusing on the level of education accumulated in the past, Figure 2 shows recent enrollment rates, which could be interpreted as a measure of present investment in education.

Figure 2: Enrollment Rates in Pre–Accession Countries, 1995-97



EU average=100[a]

[a]Population–weighted.

Source: World Bank (2000).

In the EU, net primary enrollment is 100 percent. In all PACs, net primary enrollment is close to the average EU level, and hence close to 100 percent. Net secondary enrollment is lagging behind the EU average (94 percent) in most PACs, but not by more than 20 percent except for Turkey. In both measures, the variation across PACs (excluding Turkey) is rather small and similar to the variation across EU countries. A major gap exists in tertiary education, where only Bulgaria and Estonia achieve levels relatively close to the EU average, which is 48 percent. All other PACs fall substantially behind the EU average, with Romania and Turkey displaying the lowest level. These figures cast some doubt on the reported figures for average years of education in the formerly socialist countries. Their enrollment figures at least suggest that their average level of education will tend to fall if current enrollment rates persist.

Moving from the previous two quantitative measures of education (and human capital) towards a qualitative measure, Figure 3 shows average test scores in mathematics and science at the seventh and eights grade, as reported in the Third International Mathematics and Science Study (TIMSS). Test scores in mathematics and science are certainly not an encompassing measure of educational quality, but these subjects probably allow for the highest standardisation of tests and, therefore, may provide a meaningful basis for international comparisons (Estonia, Malta, Poland, and Turkey did not participate in TIMSS).

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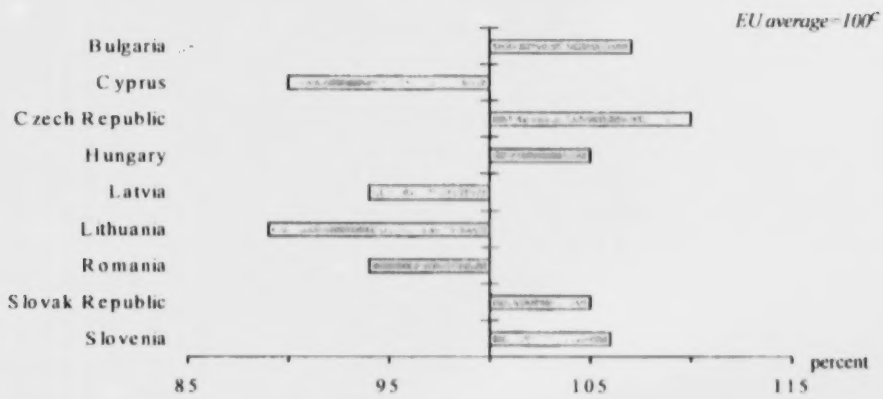
Figure 3: Average TIMSS Test-Score[a] in Pre-Accession Countries, 1994/95[b]



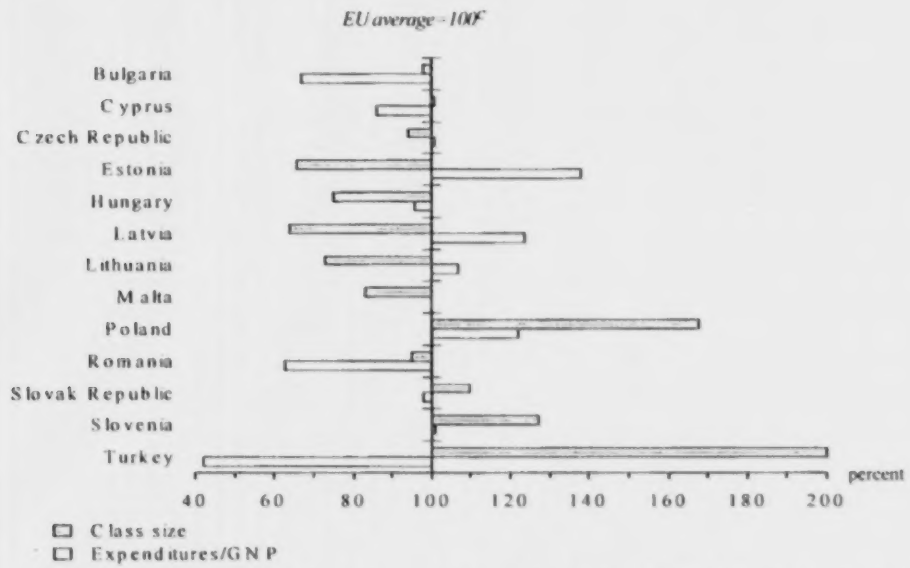
[a]Unweighted average of test scores in mathematics and science at grades seven and eight.
[b] Estonia, Malta, Poland, and Turkey did not participate in TIMSS 1994/95.
[c]Population-weighted.

Source: IEA (1998).

On average, the quality of schooling in the PACs does not seem to differ substantially from the average quality of schooling in the EU. Test scores center around an EU average test score of 500 points, which also equals the average of the full sample of countries participating in TIMSS. By this measure, the quality of education in Bulgaria and in the Czech Republic appears to be slightly higher than in the Netherlands, which is the best-performing EU country; and the quality of education in Lithuania appears to be similar to that of Greece and Portugal, which ranks at the lower end of EU test scores. Overall, these numbers tend to suggest that there are no large differences in the quality of education between EU countries and PACs.

For most PACs, this also holds for class size. The dark bar in Figure 4 shows the number of students divided by the number of teachers (excluding school administration) in general secondary education, averaged for 1995 and 1997. The EU average is 12.5 students per teacher; the (unweighted) average across PACs is 13.6 students per teacher. The variation of class size both across the EU and the PACs is substantial, but it does not differ by much. That is, Latvia has an average class size which is comparable to that of Austria or Belgium, whereas Poland has an average class size which is larger but still comparable to that of Spain. However, Turkey's average class size in secondary education is more than twice as high as the EU average.

Figure 4: Class Size[a] and Total Education Expenditure[b] in Pre–Accession Countries



[a]Number of students divided by number of teachers (excluding school administration) in general secondary education, in 1994/95.

[b]Total public expenditure on education in percent of GNP, average for 1995 and 1997.

[c]Population–weighted.

Source: World Bank (2000).

Class size can be interpreted as measure of the educational resources that finally reach the students. That is, countries with a relatively large schooling bureaucracy would probably have, with the same average class size, a higher educational budget. To see how PACs perform in this respect, one has to consider that most of these countries have a considerably lower per capita income than the EU average (see below). Since the educational budget mainly consists of the remuneration for teachers and other staff, the same educational budget in absolute terms (in Euro) would buy substantially more educational resources in poor countries just because services like schooling are relatively cheaper in poor countries than in rich countries. To account for this effect, the bright bars in Figure 4 show total public expenditures on education as a percentage of GNP. This measure provides a meaningful comparison of educational budgets as long as the demographic structures of the countries considered does not differ by much (which is the case).

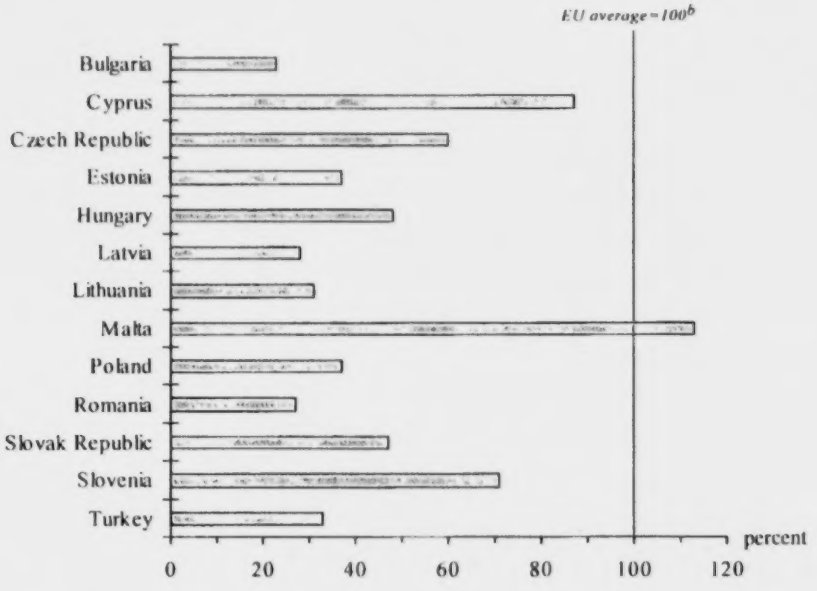
The somewhat surprising finding is that the size of the total educational budget does not fit together with the estimated class size in secondary education in all PACs. On average, one would expect that an educational budget (relative to its own GNP) that exceeds the EU average of about 5 percent should go hand in hand with average class sizes that fall behind the EU average, as seems to be the case in the three Baltic countries. Turkey is an example for a country where substantially less than the EU average is spent on education, which apparently results in above-average class size. However, there are obviously some PACs which manage to run education systems that are more effective than the EU average. Bulgaria and Romania spend substantially less on total education than the EU average but achieve average EU-class size in secondary education. Hungary spends about as much on education as the EU average but achieves a substantially smaller class size. Although part of this relative advantage in measured effectiveness may result from low teacher salaries, at least in Bulgaria and Hungary it is unlikely to come at the cost of a lower educational quality. Students from

Bulgaria and Hungary performed above the EU average in the TIMSS tests whereas students from Romania performed below the EU average (see Figure 3).

At the same time, there are also PACs with apparently less effective education systems than the EU average. Poland is the most outstanding case. Notwithstanding an average class size of about 70 percent above the EU average, Poland spends about 20 percent more on total education than the EU average. These numbers point to an inefficient education system, at least relative to the EU average (which may be an inefficient system in itself, see B IV below). To a lesser degree, such an assessment also holds for Slovenia, which spends about as much as the EU average on total education but realises an above-average class size.

At face value, the available educational statistics on quantity, quality, and resources point to a fairly good record of most PACs relative to the EU average, with Turkey somewhat lagging behind. But a good record on recent educational statistics may only slowly translate into a high stock of human capital. A good record on educational measures that was accumulated under socialism may not have contributed to a stock of human capital that is economically relevant today. Leaving Turkey aside, the disturbing fact remains that especially the formerly socialist countries display a rather low level of productivity as measured by their GDP per capita (Figure 5). Of this group, only Slovenia generates a higher per capita output than Greece, which has the lowest per capita output in the EU. Yet Slovenia is the only PAC with a lower level of average years of education than the EU average. By contrast, countries such as Bulgaria, Poland, and Romania, which all report a level of average years of education of about 110 percent of the EU average, only achieve productivity levels of 23 percent, 37 percent, and 27 percent. This is a level comparable to that of Turkey, which reports average years of education of only about 60 percent of the EU average.

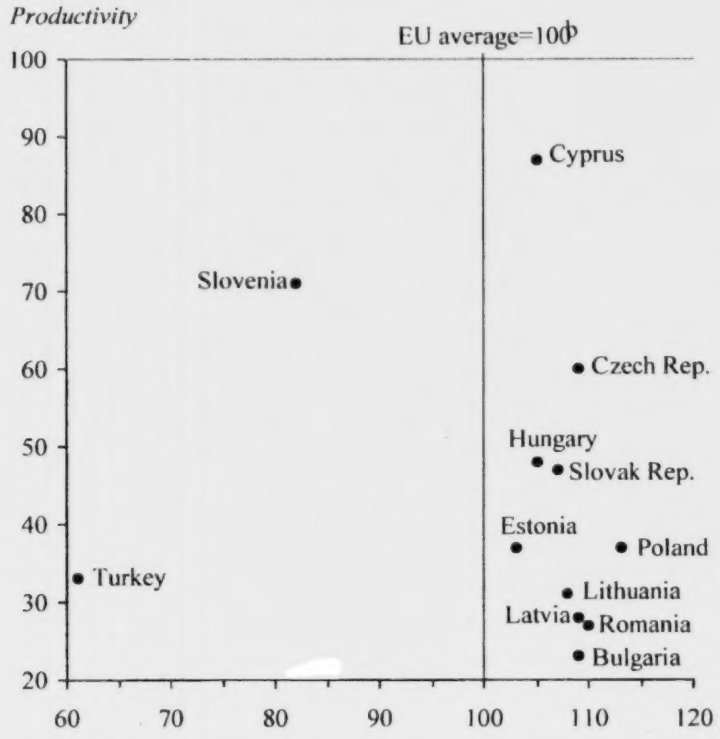
Figure 5: Productivity[a] in Pre–Accession Countries, 1998



[a]Gross national product per capita in international dollars (purchasing power parity).
[b]Population–weighted.
Source: World Bank (2000).

Overall, these numbers certainly allow alternative interpretations and are always subject to possible statistical ambiguities. But if anything, there seems to be a negative correlation (coefficient of correlation: 0.69, statistically significant at the 5 percent level) between per capita output and average years of education across the formerly socialist PACs (Figure 6). When Cyprus and Turkey are included in the sample, there appears to be no statistically significant relationship at all. By contrast, the correlation between per capita output and average years of education is generally found to be statistically significantly positive in cross-country studies (Hall and Jones 1999, Gundlach et al. forthcoming). This seems to suggest that for most formerly socialist countries, the reported average years of education in the population should not be taken as a reliable proxy for the economically relevant stock of human capital. East Germany's experience with EU membership provides some additional evidence.

Figure 6: The Correlation between Productivity[a] and Average Years of Education in Pre–Accession Countries



[a]Gross national product (GNP) per capita in international dollars (purchasing power parity).
[b]Population–weighted.
Source: Barro and Lee (2000); World Bank (2000).

B.II. The Productivity of Human Capital After EU Accession: The Case of East Germany

The case of East Germany probably provides an instructive example for the productivity effects of EU accession that can be expected by formerly socialist countries. East Germany's average years of education in the population aged 15 and older were estimated to be about 10 percent above the West German level in 1990 (Barro and Lee 1996). Compared to West Germany's economic miracle after the Second World War, which offset the material destruction within a few years due to the prevailing high level of human capital, German unification (and hence East Germany's EU membership) in 1990 immediately raised high-flying expectations of "blossoming landscapes" in the eastern Länder within less than a decade. Physical capital rather than human capital was seen as the most serious bottleneck for growth and development. Today, a similar reasoning seems to prevail in many PACs.

This is not to deny that high rates of growth and catching up to a persistently high level of the standard of living are possible if alternative economic assets can substitute for the destruction of specific economic assets. Such an optimistic view was (and is) obviously founded on the idea that a lack of physical capital, which can fairly easily be overturned, is at the heart of the fairly large differences in the standard of living between the average EU country and the Central European PACs. However, as the East German experience since unification has shown, physical capital accumulation does not appear to be the decisive bottleneck for faster economic convergence to the West German level. The same may hold for most PACs.

For these countries, it may also be reasonable to hypothesize that human capital deficiencies rather than physical capital deficiencies are the major factor limiting growth and development. What makes the East German case very special is that institutional differences or technological differences, which are often blamed for a disappointing growth experience, do not appear to be relevant. Hence the East German experience with EU membership (after unification in 1990) probably comes close to what might be called a controlled experiment for assessing the growth effects of EU membership.

This is because East Germany inherited not only a complete set of institutions appropriate to advanced industrial countries, but also access to experienced administrators to run those institutions. Apart from having gained free trade access throughout Europe, among the institutions that were imported were a legal system with a body of commercial law, a system of property rights, and a set of courts; a social system including unemployment compensation, a pension system with immediate entitlements for qualified recipients, and access to health and education services independent of personal income; a hard currency; a system of public finance, accounting systems, and a banking system with branches that opened virtually immediately after unification; decentralised government authority; and strong democratic political parties (Dornbusch and Wolf, 1992).

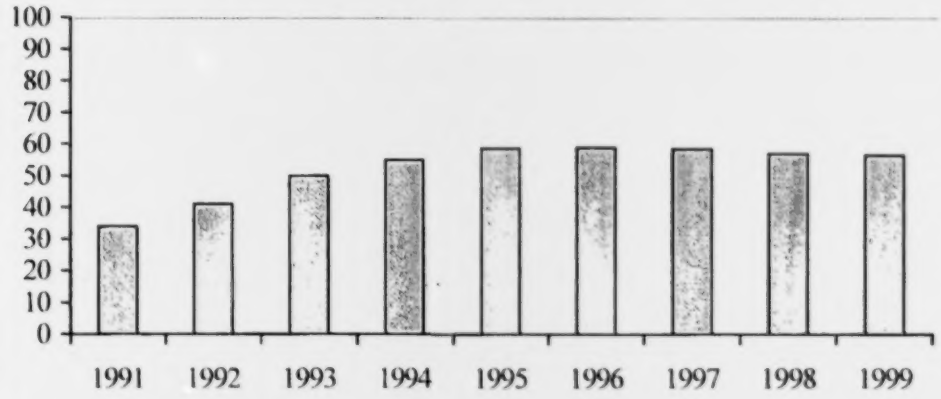
What helped the introduction of these institutions were two special factors which will not apply in the case of PACs. One is that unification created a legal union and so dispensed with the sovereignty issue that usually inhibits the complete import of institutions. The other is that a common institutional history implied that institutions new to East Germany could nevertheless built on existing structures in many cases. Hence neither institutional ambiguities nor cultural differences can be blamed for presumed technological deficits or low saving and investment rates in the case of East Germany.

Notwithstanding these rather unique favorable starting conditions, high-flying expectations have been disappointed so far. Labor productivity in East Germany has reached about 60 percent of the West German level after ten years of EU membership. This is up from much lower levels in the

early 1990s, but further convergence of labor productivity between East and West Germany has slowed down already since the mid 1990s and completely faded out recently.

One year after unification, East Germany's GDP per working-age person was estimated to be about one third of the West German level. It roughly doubled over the following five years but has remained at a level of about 60 percent of the West German level ever since (Figure 7). These simple facts can be interpreted from two perspectives. East Germany's productivity record certainly is a success story compared to many other transition economies, where the initial fall in output has been much larger and the subsequent recovery has been much smaller (Fischer and Sahay 2000). But by comparing East and West Germany's level of labor productivity, it turns out that not everything is well. Given that there are no differences in institutions and no limitations in factor mobility and capital flows, it would be reasonable to predict a gradual and probably fast process of convergence of labor productivity. But this does not seem to happen, at least not as fast as was initially expected. The question is why.

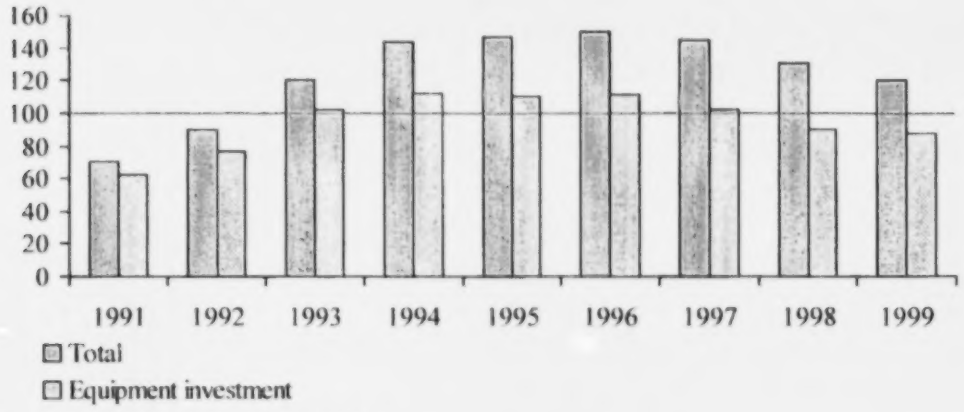
Figure 7: GDP per Working-age Person in East Germany, 1991–1999[a]



[a]West Germany (including West Berlin) = 100.
Source: Sinn (2000).

In terms of basic growth models, the perceived lack of convergence may reflect inherent differences in capital accumulation which persist at least in the medium run despite unlimited long run capital mobility. However, differences in physical capital accumulation do not appear to be a major part of the story. Figure 8 shows that overall investment per working-age person has been up to 50 percent higher in East Germany than in West Germany since 1993. Equipment investment has fallen below the West German level recently but also remains quite high. If anything, total investment in physical capital per working-age person is higher in East Germany than in West Germany. Together with the evidence for the level of labor productivity reported in Figure 7, this implies that investment as a share of GDP is about twice as high in East Germany than in West Germany. Taken at face value, this should have generated very favorable conditions for convergence.

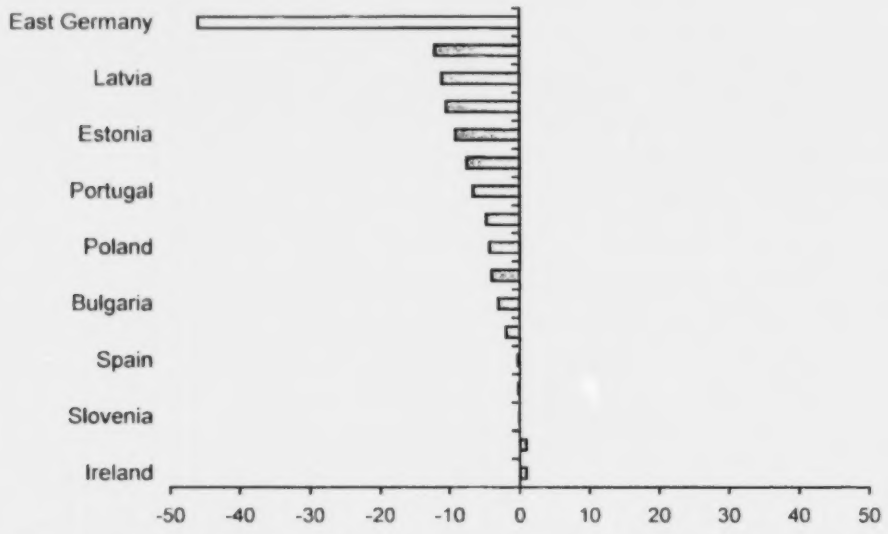
Figure 8: Investment per Working-age Person in East Germany, 1991–1999[a]



[a]West Germany (including West Berlin) = 100.
Source: Sinn (2000).

One reason for concern is that the resources invested are only partly generated by the East German economy itself, as can be seen from the structure of its absorption. There has been a large net resource inflow which amounted to more than 30 percent of total absorption in 1999 (Sinn 2000). Hence every third Deutsche Mark spent in East Germany came from the West. This means that the net resource inflow from abroad, which equals East Germany's current account deficit, accounted for 46 percent of the East German GDP in 1999. To put East Germany's net resource inflow into perspective, Figure 9 lists PACs and selected EU member countries in descending order of their current account balance. The size of East Germany's current account deficit in the range of 45 percent of its GDP appears to be rather unique, not only compared to the countries listed in Figure 9. And if economic history is any guide, current account deficits larger than 10 percent of GDP are most likely to be unsustainable. This may be different in the special German case, but there are some doubts whether the current size of the West-East resource transfer could go on forever. If not, East German consumption would have to decline in order to maintain its presently high rate of capital accumulation.

Figure 9: East Germany's Excess Absorption in Perspective[a]



[a]For East Germany: public transfers and private capital flows from West Germany in percent of East Germany's GDP, 1999; for all other countries: current account in percent of GDP, 1998 (Greece: 1997).
Source: Gundlach (2001).

In 1998, the East German capital stock per person employed was estimated to be about 76 percent of the West German level (Ragnitz 1999). This number is not directly comparable with the data on labor productivity in Figure 7, which refer in the denominator to working-age persons rather than persons employed. Nevertheless, this estimate seems to suggest that the aggregate capital-output ratio is higher in East Germany than in West Germany. This follows because output per person employed in East Germany, like output per working-age person, reached about 60 percent of the West German level in 1997. The reason for the similarity of these figures is that higher East German unemployment is compensated for by higher East German labor force participation. So the best guess is that the aggregate East German capital-output ratio was about 30 percent higher than in West Germany in 1998.

Notwithstanding possible reservations about the precise magnitudes of the capital stock estimates, which probably do not adequately reflect the specific conditions prevailing in the early phases of transition, the overall impression one gets is that lacking physical capital accumulation cannot be considered as the major problem for the missing convergence of East Germany's labor productivity. The simple fact remains that even in manufacturing, where substantially more physical capital is now used per unit of output than in the West, labor productivity on average did not exceed two thirds of the West German level in 1998 (DIW et al. 1999). That is, if physical capital deficiencies do not turn out to be the decisive bottleneck for fast convergence, human capital deficiencies may provide a much better explanation. This hypothesis may also apply for Central European PACs.

Unfortunately, very little direct information exists on the relative quality of the East German and the West German workforce. The available measures of formal schooling and training may only allow for a partial picture of the economically relevant stock of human capital as long as there are important unobserved abilities such as, say, basic differences in behavior to incentives provided by a given set of work contracts. The brain drain that occurred in the early years after unification also seems to indicate that probably some of the most motivated (young) and most productive (skilled) workers

have left the East German labor force. So differences in the average quality of the work force are likely to exist, but cannot be identified on the basis of formal measures of education.

Taken together, the following stylized facts emerge about output and factor input of the East German economy after unification. Labor productivity doubled from 30 percent of the West German level to about 60 percent within five years but has remained at about that level ever since. Physical capital accumulation appears to be strong: investment as a share of GDP and the capital-output ratio are higher than in West Germany and there is a large net resource inflow. As measured by average years of education of the workforce, human capital input also seems to be strong. But with identical institutions, no differences in technology, and higher levels of physical and human capital than in West Germany, East Germany should have grown much faster than it did.

For instance, a simple neoclassical growth model with technological change, physical capital, and human capital as the basic factor inputs can be used to derive theoretical growth rates that can be compared with actual growth rates (for details, see Gundlach (2001)). The very first years after unification are certainly difficult to explain with this kind of approach. As Figure 7 shows, East Germany had already reached 50 percent of the West German productivity level in 1993. But the model may provide a reasonable measure of reference for the following years. The simulation results presented in Table 1 assume that the East German economy starts from a level of labor productivity which is at 50 percent of the West German level (as in 1993) and take account of the extremely high net resource inflows by allowing for a non-standard capital mobility parameter. Given that investment as a share of GDP is about twice as high as in West Germany (see Figures 8 and 9), and given that human capital per worker does not differ from the West German level, the model would predict an average annual growth rate of output per worker of 4.6 percent for the first seven years (1993-2000). Basically the same result emerges if the estimated capital-output ratio of 130 percent of the West German level is used in the model simulation (Table 1, first and second row). However, output per worker actually grew only by 2.6 percent in East Germany in 1993-2000.

Table 1: The Simulated Effects of Alternative Human Capital Stocks on the Predicted Growth Rate of East Germany in 1993-2000a

Relative East German .			Predicted average annual growth rate (percent)
Human capital stock	Investment share	Capital-output ratio	
1	2		4.6
1	-	1.3	4.2
0.5	2	-	3.3
0.5	-	1.3	3.2
0.3	2	-	2.4
0.3	-	1.3	2.5

[a]Assumptions include an initial labor productivity of 50 percent and a capital mobility parameter (capital's share in factor income) of 45 percent; other parameter assumptions are a rate of time preference of 2 percent, an intertemporal elasticity of substitution in consumption of 0.5, a broad physical and human capital share in factor income of 80 percent, a depreciation rate of 5 percent, a rate of technological change of 2 percent, and a zero growth rate of the labor force.
Source: Gundlach (2001).

Assuming a lower relative East German stock of human capital, despite fairly high levels of formal schooling and other formal training, appears to be the most obvious possibility to reconcile the predicted and the actual growth rates. Two ad hoc specifications of the relative East German stock of human capital are used. Setting East Germany's stock of human capital per worker to 50 percent of the West German level does not suffice to reconcile the predicted growth rate with the observed growth rate for the parameterizations and specifications considered (Table 1, row 3 and row 4). But

the model predicts a growth rate close to the observed growth rate of 2.6 percent for 1993-2000 if the East German stock of human capital is set to 30 percent of the West German level, given that either the East German investment share is hundred percent higher or the East German capital-output ratio is 30 percent higher than in West Germany (Table 1, row 5 and row 6).

Taking the simulated stock of human capital in the range of 30 percent of the West German level at face value, the East German economy would be predicted to reach a productivity level below the West German level. With initial labor productivity at 50 percent, the above parameterization of the model would yield an East German level of output per worker of about two thirds of the West German level (Gundlach 2001). Future research will have to prove whether theoretical simulations based on a lower East German stock of human capital bear any empirical significance. But for the time being, these simulations may be considered as a reminder not to confuse the average level of formal schooling and training of the workforce with a measure of the economically relevant stock of human capital.

While it is certainly much too early to draw final conclusions about the future prospects for catching up and convergence of the East German economy, the possibility that human capital rather than physical capital seems to be the decisive bottleneck should dampen overly optimistic growth expectations of EU membership in the present group of accession countries. Especially Central European countries, like East Germany before, display measures of average years of schooling which tend to exceed the EU average. However, if East Germany's stock of effective human capital per worker is only about 30 percent of the West German level, as suggested by the simulation results, the effective stock of human capital in Central European accession countries is likely to be grossly overestimated when measured by average years of formal education. If so, the question arises how such presumed human capital deficiencies in Central European accession countries could be eliminated.

B.III. Worker Retraining Programs as Short Run Investment in Human Capital

Many European countries spend large amounts of resources on active labor market programs. In 1996, the average EU country spent 1.2 percent of GDP on active labor market measures, which is more than twice as much as in countries like Japan, the United States, or South Korea (Martin 1998). Public spending on active labor market measures per unemployed person reached up to 30 percent of average output per worker in Denmark and Sweden in 1996, compared to about 10 percent in the average EU country. A similar picture emerges when the total number of persons engaged in labor market measures is considered. About ten percent of the labor force in the average EU country participated in active labor market measures in 1996. Worker retraining programs account for the largest share of active spending measures in the average EU country (28 percent in 1996). Questions are whether participants actually benefited from training programs and whether these programs are worthwhile social investments.

In principle, retraining measures can improve and enhance the human capital of workers and thereby raise their reemployment chances and their future wages. Retraining measures can also help to adjust the quality of existing labor supply to structural changes in labor demand caused by new technologies, increased competition on world markets or, as in the case of the PACs, by EU membership. However, publicly funded retraining measures may not only have positive effects. Future employers may understand participation in a retraining program as a signal of low worker productivity, or retraining may actually downgrade the qualification of workers as compared to their previous level of human capital, or reemployment of trained workers may only substitute for previously employed workers, leaving the total level of unemployment unchanged.

Empirical evidence on the effectivity of worker retraining measures should be useful for PACs, where active labor programs could be considered as instruments for easing the required structural adjustment following EU membership. Unfortunately, labor market programs in European OECD countries have been rarely rigorously evaluated in the past. One reason for the lack of large-scale evidence may be that in Western Europe, government assistance in retraining is often viewed as something similar to a fundamental right which defies economic analysis. Another reason may be that labor market programs often serve short run political purposes and evaluations confirming their economic ineffectivity are not welcomed by government officials (Martin 1998). What follows summarises the limited knowledge on the effectiveness of retraining programs in Western Europe. Some new evidence comes from labor retraining programs initiated to mitigate the rise in unemployment in East Germany after unification in 1990.

The main point to note in any evaluation of worker retraining is that the effects of a specific measure can only be clearly identified if there is a control group of workers which did not receive training, but is other wise identical to the group of workers which did receive training. The difference in reemployment probabilities and wages could then be ascribed to the specific training measure imposed. But in practice, such a setting rarely exists and so results often remain ambiguous.

Many studies, especially in European countries, evaluate the success of a retraining measure without comparing the presumed employment and wage effects with those of a control group of workers and can, therefore, hardly be considered as representing convincing evidence. Other so-called quasi-experimental studies select treatment and control groups after the retraining measure was implemented and use statistical techniques to control for differences in the characteristics of the two groups compared. Despite their statistical complexity, such studies provide more reliable estimates of the effectiveness of worker retraining. This is because at least in principle, they can identify the change in reemployment probabilities and wages that is due only to the training measure imposed, and not to other factors.

Labor market programs may focus on different groups of workers such as young persons being unemployed after leaving school, long-term unemployed workers, or workers laid off en masse from a single plant or firm closure. For PACs, the European experience with the effectivity of labor market programs focusing on the latter group of workers appears to be most important. Dar and Gill (1998) review the results of six retraining programs conducted in European countries (four in Sweden, one each in Denmark and France).[24] Of these, only one used quasi-experimental methods and one used more than one technique to estimate the impact of a training measure. Other results reported in their survey refer to the United States (three studies), Canada, and Australia.

All studies were undertaken for job losses in manufacturing, when labor market conditions were generally deteriorating in times of economic recession. Training was mainly provided through classroom teaching, and most programs were accompanied by job search assistance measures. Evaluations using no control group indicate that worker retraining measures seem to be effective in placing high numbers of workers back to work. However, more reliable quasi-experimental evaluations indicate that retraining programs are generally no more effective than job search assistance measures in increasing reemployment probabilities or post-training wages. What is more, independent of the method used to estimate the actual employment and wage effects, the studies reviewed point out that

[24] The six studies mentioned cover a general assessment of public retraining measures in Sweden in the 1980s and 1990s and refer to specific measures initiated in relation with steel and coal plant closures in France in 1984, a pulp plant closure in Sweden in 1977, a lay-off at a shipyard in Sweden in 1985, a lay-off at an automobile plant in Sweden in 1992, and a shipyard closure in Denmark in 1986. In the latter five cases, between 1000 and 2000 workers were affected by the lay-offs.

retraining programs appear to be about two to four times as expensive as job search assistance measures. This finding suggests that any public retraining programs should be of limited scale and well-targeted to the needs of both job seekers and local employers. By setting appropriate job-finding incentives (re-employment bonuses) and by job-search assistance programs the same employment effects may be realized at much lower cost.

Martin (1998) also notes that evaluations of worker retraining programs in OECD countries suggest a very mixed track record. Moderate positive results were only recorded for adult women. For adult men, the evidence is less positive and in some cases there might have been even harmful effects of training measures, as noted by some US findings. The most dismal picture emerged for the young, since almost no training program worked for them. This insight points to the importance of a high-quality schooling system which insures that students finishing school are equipped with basic skills that are valued by employers.

Another selection of studies of European job training programs is summarized by Heckman et al (1999). Based on microeconomic datasets with up to 30.000 observations (in one study for Denmark), these studies use advanced econometric methods to control for self-selectivity into training and to identify an appropriate control group of workers who did not receive training. Overall, the gains from worker retraining programs do not appear to be sufficiently large to lift many persons out of poverty or to reduce unemployment significantly. Consistent with the US evidence, European studies also find that access to job search assistance measures significantly raises employment rates, at a much lower cost than training measures.

Furthermore, the identified (small) gains of existing labor market programs in European countries appear to arise from increased employment rates rather than from increased wages. There seems to be no compelling evidence that European active labor market policies have had a positive impact on the wages of participants. Such a finding implies that retraining measures did not generate human capital-enhancing effects, which should be reflected in higher incomes. But if retraining measures do not translate into additional human capital and higher incomes, it becomes less clear how the estimated employment impacts should be interpreted. For instance, positive employment effects may be offset to some extent by the displacement of non-participants. Such effects are neglected by most existing studies due to methodological difficulties. Yet the missing evidence on wage effects of retraining may point to the empirical relevance of possible substitution effects.

The East German experience with worker retraining measures could provide directly relevant lessons especially for Central European PACs, mainly because the initial level of worker productivity appears to have been similar. The substantial amount of resources that has been invested in worker retraining in East Germany should produce an upper limit of potential positive effects, which is unlikely to be reached in countries which cannot afford to spend similar amounts on worker retraining. For instance, more than 50 percent of all working-age persons in East Germany did participate in worker retraining measures in 1989-1994 (Hübler 1997).

Taken together, the East German experience with worker retraining measures paints a dismal picture. Spending on worker retraining was extremely high by historical and by international standards, but the employment and especially the wage effects appear to be close to zero and may in some cases even be negative. This assessment is based on the findings of several studies which rely on advanced microeconometric methods to address the selectivity problem. That is, these studies meas-

ure wage and employment effects of retraining measures relative to wage and employment effects of otherwise identical workers which did not receive training.[25]
For instance,
Hübler (1997) finds negative short run employment effects of retraining, and small positive effects for men only in the longer run (without considering possible replacement effects and the implied return on the investment measures). For women, however, training measures apparently only precede becoming unemployed.
Fitzenberger and Prey (1997) find that in contrast to on-the-job training, public training measures do not generate statistically significant effects.
Kraus et al. (1997) find that in the first phase of the East German transition process, when the institutions delivering the training programs were set up, there were no positive effects of training on reemployment probabilities; small positive employment effects appear to show up only after the institutional structure of the programs was in place.
Lechner (1999) finds that vocational training and retraining measures have a negative impact on reemployment probabilities in the short run, probably because participants reduced job search efforts as compared to non-participants; he finds no significant effects several months after the training measure.

These by and large negative results are all the more remarkable because the trainees in East Germany did not come from the low-skill-low-ability group which is the target of many programs in other countries. By contrast, program participants in East Germany were in general well educated and had fairly high job positions in the former GDR. These features tend to make the East German results applicable to Central European PACs which also display a workforce with a relatively high level of formal education.

Overall, the European and the East German evidence on worker retraining measures suggests that it will remain extremely difficult to design effective public training programs in PACs. But even if it were possible to generate an effective retraining program at least for a certain group of workers, policymakers should be aware that any program is unlikely to increase the average level of human capital, and hence the average income, by much. The empirical literature suggests that a rate of return of investment in human capital through training measures of about 10 percent would be considered as high. That is, a thousand Euro spend on the retraining of one person would not raise the annual income of that person by more than 100 Euro. Given the limited resources available for retraining measures in PACs, and given that the return to training measures is most likely to be lower than 10 percent in practice, the absolute effects that can be achieved by worker retraining measures appear to be small in magnitude.

Moreover, policy makers should be aware that non-scientific evaluations which do not rely on appropriately specified control groups of workers are likely to present an overly optimistic picture of the effectivity of worker retraining measures for some groups, which in turn may easily lead to incorrect policy conclusions. As reported in the literature, more rigorous econometric evaluations indicate that job search assistance measures appear equally effective and cost less than half of worker retraining measures.

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[25] These studies use data from two sources. One is the German Socio Economic Panel (GSEP), which is similar to the US Panel Study of Income Dynamics. Since 1990, the GSEP includes a sample of just fewer than 2000 East German households. The other is the so-called Labor Market Monitor (LMM), which is a mail survey conducted every 4 to 6 month. The number of observations is higher in the LMM than in the GSEP, but the LMM lacks the variables needed for nonparametrically identifying the effects of training measures and hence requires specific modeling strategies.

An important weakness of most existing studies is their microeconomic focus. As such, they do not take into account that retraining measures have to be financed by higher taxes and that retrained workers may simply displace employed workers. With these macroeconomic repercussions on labor demand in mind, the *social* benefits of retraining measures would be considerably lower than the private benefits indicated by otherwise scientifically valid evaluations.

Therefore, PACs should recognise that retraining of workers should not be the main form of assistance in adjusting to EU membership. All available empirical evidence, and especially the East German evidence, suggests that low-skilled workers cannot be easily adapted to changing economic circumstances by retraining measures. Labor market programs focusing on older workers are bound to fail economically, and can only be motivated for political reasons. Subsidizing rather than retraining older workers and instead investing in human capital through effective schooling of the young may prove to be a superior policy alternative. The reason is quite simple: for the same level of investment at each age, the return from spending on the young is higher because the old have a shorter working life to recoup the investment made.

B.IV. Schooling as Long-Run Investment in Human Capital

If worker retraining programs do not work properly as short run investment in human capital, additional and better schooling of the young remains as a possibility for effective long-run investment in human capital. Devoting more resources to education is almost always held to be an appropriate strategy to master the challenges of the coming "knowledge-based" economy and, in case of the PACs, to additionally master the challenges of EU membership. But despite its seeming plausibility, such a strategy also often does not work as presumed.

In this context, the first question to address is whether higher public spending on education does indeed lead to improved schooling outcomes. Since primary and secondary enrollment rates are pretty close to the EU average in most PACs (see Figure 2), improved schooling outcomes should mainly show up as an increase in the average qualification of students. However, the international literature on the economics of education by and large concludes that higher public expenditure on schooling generally does not lead to substantial increases in the performance of students. Before turning to the question which alternative educational polices might work, the next section briefly reviews what is known about the missing resource-performance link in European schooling.

B.IV.1 The Missing Resource-Performance Link in European Schooling

In the average EU country, schooling accounts for a larger fraction of Gross Domestic Product (GDP) and employment than many manufacturing industries. Nevertheless, very little is known about the link from schooling resources to schooling outcomes, i.e., the productivity of schooling. Like other services, schooling is most likely a sector with stagnant productivity. Similar to performing a symphony or a haircut, schooling is labor intensive and the applied technology may not have changed that much over the past quarter century, which is in stark contrast to technological developments in manufacturing industries. The labor input required to produce an automobile has declined significantly, but performing a symphony or a haircut requires the same amount of labor resources as ever. Schooling may not be very different.

The productivity of schooling can be measured as units of schooling output per units of schooling input. Schooling output is the number of students taught; schooling input is total spending on education at the primary and secondary level. A plausible first guess would be that schooling productivity,

like haircut productivity or symphony productivity, does not change by much over time: in all cases, the consumer is part of the product, the production is labor intensive, and the technology is tried and tested. What hinders productivity growth is the combination of these features. Hence in theory, schooling should be a sector with stagnant productivity, where the same amount of input resources always produces the same amount of output.

Abstracting from all detail, it is quite instructive to consider what would happen in a perfectly flexible economy, if schooling actually displayed stagnant productivity while all other sectors faced a constant positive rate of productivity growth. The outcome would be what Baumol (1967) has called the cost disease of services. With a functioning labor market, the wages of workers in the stagnant-productivity sector would have to increase in line with those of workers in the other sectors where labor productivity increases. Given an efficient allocation of resources, the price per unit of output of the stagnant-productivity sector would rise with the average rate of productivity growth of the dynamic sectors. Applying this insight to the case of schooling suggests that a constant-quality unit of schooling output should become more costly over time.

In addition, one could even predict the efficient *size* of the expected cost increase of schooling if the average rate of productivity growth of the dynamic sectors of the economy were known. If average economy-wide productivity grows by 2 percent per year and efficiency conditions prevail, then the GDP-deflated price of schooling (and of all other stagnant-productivity sectors) should grow by 2 percent as well (Gundlach et al. 2001). That is, public expenditures per student should rise by 2 percent in an economy which grows by 2 percent if schooling productivity had remained constant. However, if public expenditure per student grows by more than the benchmark figure defined by average productivity growth, then either schooling productivity must have declined or the quality of schooling output in the form of student performance must have increased. The available evidence appears to confirm that the former, not the latter is actually the case.

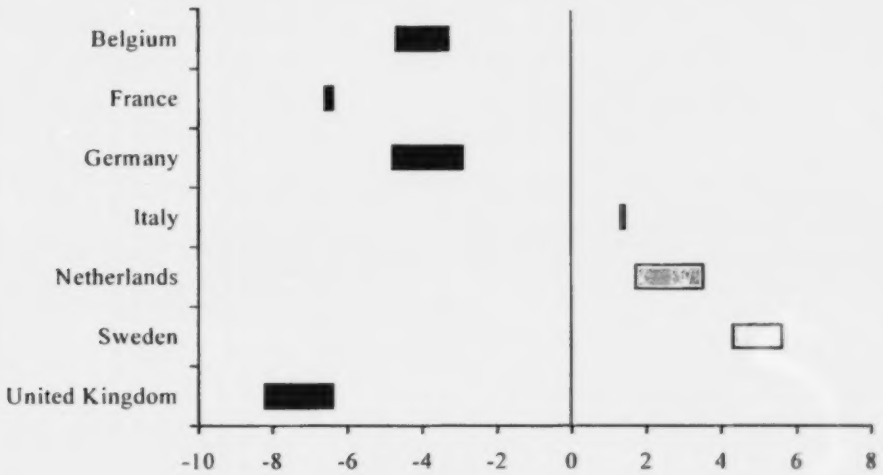
The main problem with an empirical estimation of the predicted effects lies of course with a correct measurement of potential changes in the quality of schooling output. In principle, changes in the quality of schooling output can be measured by the results of standardized student achievement tests at various points in time. However, consistent time-series data on the cognitive achievement of students are available only for the United States. These tests suggest that there has been no substantial change in the average performance of US students in 1970-1994 (Hanushek 1997).

In addition to the intertemporal US evidence, there is cross-country evidence on student performance for selected years. The International Association for the Evaluation of Educational Achievement (IEA) conducted cross-country science studies in 1970/71 and in 1983/84, and cross-country mathematics studies in 1964 and in 1980-82. The IEA's Third International Mathematics and Science Study (TIMSS), which integrated the two subjects, was conducted in 1994/95. All these studies include achievement tests for students in the middle and final school years, and except for the two mathematics studies, students were also tested in the primary school years.

A direct comparison of the results is not possible because the sample of participating countries, the design of test questions, the distribution of difficult and easy questions within a test, and the format in which test results are reported all have changed. Nevertheless, it is possible to calculate *changes* in the performance of students for each country over time subject to specific assumptions about the mean and the standard deviation of the reported test results. This is possible at least as a rough approximation because independent of the test actually conducted, in each case the performance of students from any single country relative to the constant performance of US students is known. Therefore, the (constant) performance of US students can serve as an intertemporal benchmark.

To make the different test results comparable over time, the sample distributions and sample means have to be converted to a common scale (for details, see Gundlach et al. (2001)). Figure 10 presents the results for the calculated changes in the average performance in science and mathematics of students from selected European countries relative to the constant performance of US students, which is shown as the vertical line. Bars on the left side of the vertical line show a decline in the performance of students relative to the performance of US students, bars on the right side of the vertical line show a relative improvement. The size of the bars reflects the range of estimates derived under three alternative statistical assumptions regarding the mean and the standard deviation of the various subtests. A bar further away from the vertical line indicates a larger estimated change in relative student performance. Since all bars are pretty close to the vertical line, the findings seem to suggest that the relative performance of students in selected European countries did not change by much. And since all bars are relatively small, the results appear to be robust with regard to alternative statistical assumptions. As concerns PACs, a comparable calculation would only be possible for Hungary (but is not available in the literature).

Figure 10: Changes in the Quality of Schooling Output in Selected European Countries, 1970–1994[a]



[a]Estimated range of an index which measures the change in the average performance of students in standardized achievement tests in science and mathematics, relative to the constant performance of US students (0=constant performance). The estimated range reflects the impact of alternative assumptions about the mean and the standard deviation of the test distributions.

Source: Gundlach and Wößman (2001).

Given that student performance actually did not change by much in European countries, and especially not for the better in Belgium, France, Germany, and the United Kingdom, one would expect that educational expenditure per student should more or less rise in line with average productivity growth, as outlined above. In this case, schooling productivity would have remained constant. However, if the cost of schooling is growing faster than the average rate of economy-wide productivity growth, there would be a decline in schooling productivity, and hence no resource – performance link.

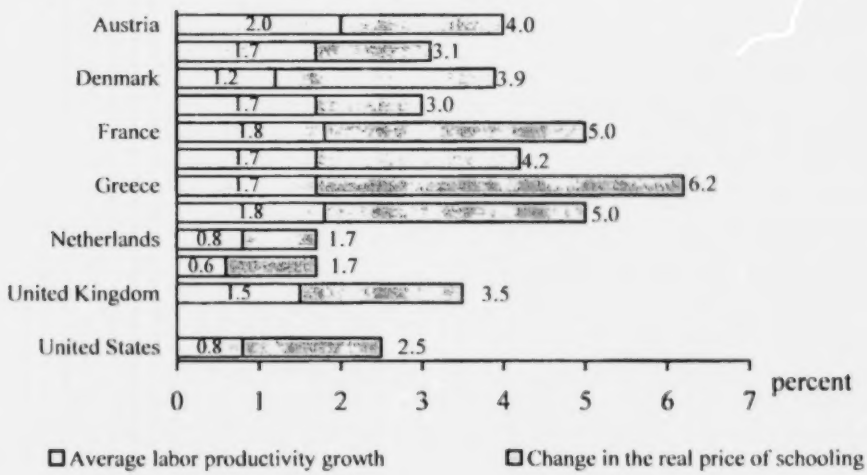
Since expenditure is generally defined as price times quantity, the price (or cost) of a unit of schooling output with constant quality follows as total expenditure on primary and secondary education divided by the number of students enrolled in primary and secondary education. Based on UNESCO data, schooling expenditure is measured as current nominal public expenditure on education, which

mainly consists of remuneration for administrative staff and teaching staff. That is, capital expenditure is excluded from the measure to avoid an influence of possible cycles in spending on school buildings.

Alternative deflators can be used to control for the average rate of inflation in the measured change in the nominal price of schooling. One possibility to assess changes in the productivity of schooling is to compare the GDP-deflated increase in the price of schooling with the average economy-wide growth rate of labor productivity. The general finding is that the increase in the GDP-deflated price of schooling in the four large European countries exceeds the average annual growth rate of labor productivity in these countries by an order of magnitude (Figure 11). This finding does not fit together with the assumption of a more or less efficient allocation of schooling resources in European countries, with Sweden and the Netherlands as possible exceptions. In all other cases, the results point to a decline in schooling productivity in European countries that is substantially larger than in the United States.

The same result reappears if changes in the (nominal) price of schooling are compared with (nominal) changes in the price of other labor-intensive service categories such as „producers of government services" and „community, social, and personal services", which are reported in UN National Accounts data. Presuming that these two service categories exhibit stagnant productivity, any positive difference between the price of schooling relative to these other service-sector deflators should indicate a relative decline in schooling productivity. Figure 12 indeed shows relatively large positive differences between changes in the price of schooling and average changes in the price of the two other service categories for all European countries. In most cases, the amount of the implied productivity decline is again larger than in the United States, and it is larger than in Figure 11. As before, the two less dramatic cases are Sweden and the Netherlands.

Figure 11: Changes in the Real Price of Schooling[a] and Average Labor Productivity Growth[b], 1970–1994



Note:

[a]Change in the real price of schooling equals average annual change in public current expenditures per student enrolled in primary and secondary education (UNESCO data), deflated with the GDP deflator (UN data).

[b]Average annual rate of change of real GDP per worker (World Bank data).

Source: Gundlach and Wößmann (2001)

Overall, these numbers imply that it does not matter much in practice whether changes in the GDP-deflated price of schooling are compared with the average growth rate of labor productivity or whether changes in the nominal price of schooling are compared with changes in prices of other stagnant-productivity services. On both counts, there is a huge implied decline in schooling productivity in most European countries in 1970-1994. For instance, an average annual decline in schooling productivity of about 3 percent over a time span of 25 years, as an average of the two measures for instance in France, Germany, and Italy, would mean that schooling resources have roughly doubled in these countries. But unfortunately, there is no evidence that the average performance of students in France, Germany, and Italy in the 1994 achievement tests is about twice as good as in 1970. By contrast, the available evidence suggests that the performance of students has remained constant at best. What is more, the only countries with a slight improvement in measured student performance are those that report the lowest decline in schooling productivity, namely Sweden and the Netherlands.

In the other European countries, even substantial increases in schooling resources did not boost schooling quality. This finding confirms a large microeconometric literature, which failed to identify a positive relation between additional schooling inputs and student performance (cf. Hanushek 1996, Hoxby 2000). A potential explanation for this finding is that the family background of the students might have worsened. Students coming to school today may lack many of the basic capabilities required for a successful education and may, therefore, be increasingly expensive to educate. Such effects may play a significant role in countries with a large inflow of immigrant families with school-aged children or in countries with rising levels of poverty. But especially in the EU, there are also counterbalancing effects.

Today, parents in EU countries enjoy higher incomes and are better educated than their parents were 25 years ago. In addition, the number of children per family has declined. Hence children may actually start schooling with better basic capabilities than ever before. For EU countries, the net effect of possible shifts in different family background influences is not known. For the United States, Grissmer et al. (1994) estimate that the net effect has worked in the direction of making students better prepared for learning. In case such an outcome would also apply for European countries, the missing positive performance effects of increased educational spending would be even more severe than indicated by the calculations presented in Figures 11 and 12.

On balance, all this implies that the schooling sector can be regarded as inefficient in many EU countries. In the age of globalization, countries with inefficient schooling systems are likely to face a loss of international competitiveness, which would limit the possibilities for further economic development. For most European schooling systems, institutional reforms might be necessary before additional schooling resources can be expected to improve student performance. This also holds for PACs, which most likely have to increase the human capital of their workforce in order to achieve the average EU productivity level. Therefore, it is important to understand which institutional reforms might help in increasing the productivity of schooling.

B.IV.2 Policies for Effective Schooling: Institutions Matter

In most European countries (and worldwide), the great majority of schools is publicly financed and managed. The institutions and policies established by various levels of government create incentives for students, teachers, and the school administration to use available resources in ways that maximize the individual utility of these actors, given the constraints they face. In many sectors of the economy, competition imposes penalties on actors who fail to use their resources efficiently. But schooling is different: A lack of competition and the prevailing institutions may create incentives

that are not conducive to student performance but result in an inefficient allocation of resources. This, in turn, would lead to rising costs rather than to improved quality, as reported in the previous section.

Within a country's educational system, various institutions determine how schools are financed and managed, how student performance is assessed, and how basic educational decisions regarding curriculum, staff, and materials are made. In the best of all worlds, schooling institutions should generate incentives that encourage students, teachers, and the school administration to behave in ways that do not necessarily further their vested interests but instead further students' educational performance and save on cost. For instance, without the right incentives, teachers may avoid using the most promising teaching techniques and instead prefer using the techniques most convenient to them. In terms of policy, one might speculate that if a country assesses the performance of students with some sort of national exam and uses this information to monitor teachers, teachers will focus more on raising student achievement than would otherwise be the case.

The international evidence on student achievement provides a chance to find out which schooling institutions are most conducive to student performance. This is because in most cases, schooling institutions within a country do not vary enough and are relatively stable over time. Hence estimating how schooling institutions may impact on student achievement is almost impossible on the basis of within-country studies. Only the international evidence, which encompasses many different education systems with a wide variety of institutional structures, has the potential to show how schooling institutions impact on student performance.

In particular, micro data from the Third International Mathematics and Science Study (TIMSS) can be used to analyze the impact of various schooling institutions (Wößmann 2001). TIMSS is the latest international student achievement test for which data is currently available, and it is the most extensive one ever conducted both in its coverage of countries and in the scope of its contents. In the following, the focus is on the middle school years, where students enrolled in the two adjacent grades containing the largest proportion of 13-year-old students were tested, which are 7th and 8th graders in most countries.

The students' achievement levels in mathematics and science were tested by a combination of multiple-choice and open-ended-response questions which covered a wide range of topics and capabilities in the two subjects. The test items were chosen to reflect most closely the current curricula of the students of all participating countries. A test-curriculum matching analysis conducted by TIMSS showed that omitting those items for each country which measure topics not addressed in the curriculum had little effect on the overall pattern of achievement results across all countries. All in all, the TIMSS test results are most probably the best one can currently get in measuring student achievement in mathematics and science.

Combining the performance in the different questions of a subject, proficiency was standardized in TIMSS to an average of 500 and a standard deviation of 100 to yield the international achievement scores (Beaton et al. 1996). Top performer of the international sample in both mathematics and science was Singapore with average test scores of 622 and 576 points, while South Africa was at the bottom of the list with 351 and 322 points. As reported in Figure 3, some PACs scored relatively close to the EU average, which is also close to the international average. Overall, the data set used in Wößmann (2000, 2001) includes data on more than 250,000 individual students, who form a representative sample of a population of more than 30 million students in the 39 countries considered. Roughly two thirds of these countries are in Europe.

TIMSS also contains student-level data on family background and school-level data on schooling resources, and it contains various institutional data: class-level data on teachers, and school- and country-level data on the distribution of decision-making powers within the education system. Further country-level data on institutional features of the education system can be taken from the OECD educational indicators.

Four institutional features of a country's educational system deserve special attention: centralized exams; the distribution of decision-making power between schools and their governing bodies; the level of influence that teachers and teacher unions have on school policy; and the extent of competition from the private school sector. But before the empirical relevance of these institutions can be tested, the possible effects on student performance of family background and schooling resources must be controlled for. Without giving detailed results here, general findings are that the educational level achieved by parents is strongly positively related to their children's educational performance and that there is no strong positive relationship between educational expenditure and student performance (as also reported on the basis of time series data for selected European countries in the previous section).

Centralized exams

Of the 39 countries in the TIMSS sample, 15 have some kind of centralized exams, in the sense that an administrative body beyond the schooling level writes and administers the exams to all students. Several PACs belong into this group, namely Bulgaria, Hungary, Latvia, Romania, and Slovenia (Robitaille 1997). The existence of some form of centralized examination can profoundly alter the incentive structure within the educational system by making performance comparable across classes and schools. It makes it easier to tell whether a given student's poor performance is an exception within a class or whether the whole class is doing poorly relative to the country as a whole. Centralized exams introduce transparency: parents can assess the performance of children, teachers, and schools; heads of school can assess the performance of teachers; and the government and its administrative bodies can assess the performance of different schools.

The findings presented in Table 2 confirm that all other things constant, centralized exams boost student performance (see results under heading no. 1), thereby supporting previous evidence based on country-level estimations (Bishop 1997). All other things equal, students in countries with centralized exams scored 16 points higher in mathematics and 11 points higher in science. The mathematics effect is statistically significant at the 15 percent level, and when imputed data are excluded in a more robust specification (not reported in Table 2), it is statistically significant at the 10 percent level. The science finding is not statistically significant due to the small number of countries in the sample. Furthermore, students in schools where external exams or standardized tests heavily influence the curriculum, scored 4 points higher in mathematics but there appears to be no effect in science in a more robust specification which excludes imputed data (not reported in Table 2). This probably suggests that science tests are more difficult to standardize than mathematics tests.

Table 2: The Impact of Selected Schooling Institutions on Student Performance[a]

	Mathematics		Science	
	Coeff.	Robust S.E.	Coeff.	Robust S.E.
1. Centralized exams				
Central examinations	16.062	(10.574)	10.650	(8.743)
External exams influence curriculum	4.271 ‡	(2.199)	-4.364 †	(1.881)
2. Decision-making between schools and their governing bodies				
Central curriculum	10.776	(11.440)	5.573	(10.105)
Central textbook approval	9.559	(11.411)	6.157	(10.102)
School responsibility				
School budget	-5.852 †	(2.450)	-3.451	(2.356)
Purchasing supplies	0.538	(3.488)	2.867	(3.308)
Hiring teachers	12.723 *	(1.772)	5.247 *	(1.473)
Determining teacher salaries	10.588 *	(2.112)	15.162 *	(1.817)
3. The influence of teachers				
Teachers' responsibility				
School budget	-13.318 *	(3.805)	-4.583	(3.025)
Subject matter	-0.830	(1.585)	-1.213	(1.186)
Purchasing supplies	14.148 *	(2.576)	6.837 *	(2.062)
Strong influence on curriculum				
Teacher individually	11.952 *	(1.730)	10.768 *	(1.536)
Subject teachers	-6.855 *	(1.897)	-4.573 *	(1.625)
School teachers collectively	-12.659 *	(1.836)	-5.034 *	(1.575)
Teacher unions	-32.329 *	(5.979)	-18.395 *	(5.533)
Observations	266545		266545	
Schools (PSUs)	6107		6107	
Countries	39		39	
R^2 (adj.)	0.22		0.19	

* Significant at the 1 percent level based on robust standard errors.
† Significant at the 5 percent level based on robust standard errors.
‡ Significant at the 10 percent level based on robust standard errors.

[a] Dependent variable is the TIMSS international test score, in mathematics and in science. Results are based on weighted least squares regressions using sampling weights for the stratified survey data. The reported results control for a host of variables including grade level, student characteristics, family background, parental educational level, educational resource measures, and teacher characteristics (for details, see Wößmann 2000). Robust standard errors based on robust linear regression are presented in parentheses, which account for the clustered data structure with countries as strata and schools as primary sampling units (PSUs). For the variables which are measured at the country level - central examinations, central curriculum, and central textbook approval -, the reported robust standard errors are based on countries as PSUs.
Source: Based on Wößmann (2001)

Decision-making between schools and their governing bodies

Across countries in the TIMSS sample, some school systems are characterized by a high degree of administrative centralization, so that decisions on a wide range of issues are taken out of the individual schools' hands. Most PACs fall into this category, with the Czech Republic and Hungary as examples for countries, which allow for some responsibility at the school level or at the level of school boards (Robitaille 1997). Other school systems are highly decentralized; so most decisions are made at the local level. For instance, schools have a high degree of autonomy in the Netherlands, where 73 percent of decisions are taken at the local level, according to the OECD (1998). By contrast, Greece, Norway, and Portugal allow local school personnel to make less than 25 percent of decisions.

Whether granting more autonomy to schools will boost student performance is hard to predict. On the one hand, the educators within a given school should know more than central administrators

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about the most effective teaching strategies tailored for their time- and location-specific sample of students. Heads of schools should also have more knowledge than central administrators of which teachers to hire and of who deserves promotion or a raise in salary, given a fixed overall school budget. On the other hand, letting decisions on the size of the school budget be made at decentralized levels may make it easier for school personnel to reduce their workload. Hence more school autonomy may be good for student performance if, and only if, there are external standards and assessments which can control for school performance.

Results under heading no. 2 in Table 2 show first the impact of a centrally designed curriculum and a centralized list of approved textbooks on student performance. These are essentially decisions about what schools are expected to cover. As it turns out, students in countries with centralized curricula scored 11 points better in mathematics, 6 in science. Students in countries with centralized textbook approval scored 10 points better in mathematics, 6 in science. These findings seem suggestive even though the small number of independent observations causes statistically insignificant regression coefficients.

Moreover, students in schools that had primary responsibility for setting their own budget scored 6 points worse in mathematics and 3 in science (the science effect is again statistically insignificant). But giving schools autonomy in purchasing their supplies goes hand in hand with superior achievement. This is also true for decisions on hiring teachers. Students in schools that hire their own teachers scored 13 points higher in mathematics, 5 in science. Students in schools that determine their own structure of teacher salaries scored 11 points higher in mathematics, 15 in science. Taken together, it seems the performance of students can be raised by centralized decision-making on curriculum issues, which forces schools to allocate resources efficiently, and by decentralized process and management regulations, which seem to allow schools to tailor their instruction in ways that fit their students.

The influence of teachers

Besides a student's family, teachers probably have the largest impact on student achievement. Teachers often face conflicting interests. Like all other employees, they clearly have a genuine interest in increasing their income at a given workload or decreasing their workload at a given income. But seeing their students learning also gives teachers pleasure, which encourages them to work harder no matter what their money income per work hour may be. Furthermore, teachers who perform poorly may face negative consequences from their heads of school or from parents.

Since teachers account for a relatively large fraction of the workforce, they are also a potentially powerful political interest group when acting collectively. But in most Central European PACs, the interests of teachers are obviously not well represented in the political process that allocates resources to and within the education system. In these countries the socioeconomic status of teachers is quite low and teacher salaries are often below salaries for professions with a comparable qualification. In other countries, this is different. In Cyprus, for instance, teachers enjoy a relatively high socioeconomic status and have managed to receive above average salaries (Robitaille 1997).

The very aim of teacher unions is to promote the interests of teachers, namely mainly increasing their pay and decreasing their workload. Other things equal, strong teacher unions may result in weak student performance if teacher unions act to increase school resources but reduce the productivity with which these resources are used (Hoxby 1996). By contrast, the predicted effect on student performance is uncertain when teachers act individually. A high degree of teacher leeway in making decisions about which textbooks to buy should be conducive to student learning, since individual teachers know best how to teach their students. But a high degree of influence by individual teachers

in determining salary levels or the amount of subject matter to be covered should be detrimental to student performance.

Results under heading no. 3 in Table 2 come close to confirming the expected effects. Students in schools whose principals reported that teachers had primary responsibility for determining the school budget scored 13 points worse in mathematics, 5 in science. Likewise, students of class teachers who reported that they had a lot of influence on the subject matter to be taught performed worse in science, while the effect in mathematics was insignificant. But students scored 14 points better in mathematics and 7 points better in science if teachers had primary responsibility for buying supplies. As expected, teachers' influence on the curriculum needs to be divided according to how they exercise it. Students in schools where each teacher individually had a lot of influence on the curriculum performed 12 points better in mathematics, 11 points in science. But in schools where teachers acting collectively as a union had a lot of influence over the curriculum, students performed 32 points worse in mathematics, 18 points in science.

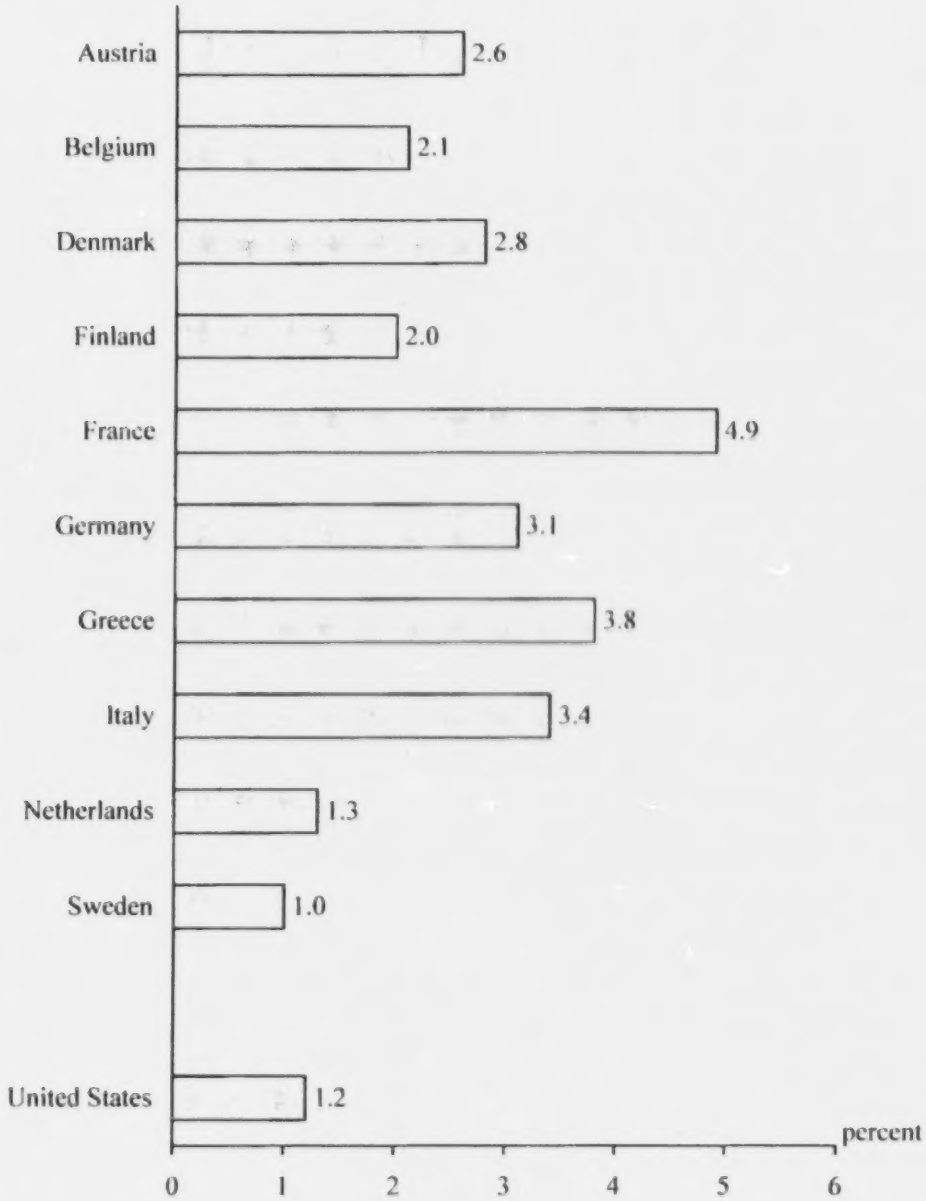
Competition from private schools

The level of competition that public schools face from private schools is another important institutional feature. Because the loss of students to private schools may harm the heads of public schools in terms of reputation and money income, increased competition from private schools should have a positive effect on the efficiency of resource use in public schools. As a result, aggregate student performance may increase if the share of privately managed educational institutions increases.

The degree of competition from private schools varies greatly worldwide. For instance in the EU, Austria, Denmark, France, Germany, Spain, and Sweden have virtually no financially independent private schools. The same holds for Central European PACs, whereas in Cyprus about 11 percent of students are enrolled in private schools (Robitaille 1997). In the Netherlands, less than 1 percent of schools are financially independent in the sense that they receive less than half of their core funding from government agencies. But the Netherlands has by far the highest share of students attending privately *managed* schools (76 percent), followed by the United Kingdom (36 percent). Additional empirical results, based on OECD data, suggest that students in countries with larger shares of their enrollment in privately managed schools scored significantly higher in both mathematics and science (Wößmann 2001). According to these results, students scored 10 points better in mathematics, 9 in science, if the share of enrollment in privately managed schools was 14 percentage points (or 1 standard deviation) higher. The effect was even stronger when only those expenditures were counted which went to independent private institutions that received less than half of their core funding from government. This suggests that student performance is higher in educational systems where some public funds are allocated by privately managed schools.

Overall, the empirical results on the impact of schooling institutions demonstrate that having centralized exams and a notable privately managed schooling sector helps to boost student performance. School autonomy also has a positive impact - but only when schools are given extensive decision-making powers over the purchase of supplies, the hiring and rewarding of staff within a given budget, and the choosing of instructional methods. By contrast, school autonomy over the curriculum syllabus, textbook lists, and the size of the budget appears to be bad for student performance. Letting teachers influence the curriculum appears to be good for students, but only when teachers act as individuals and not as an organized interest group. Taken together, these empirical findings may provide some information, not only for PACs, on what a successful reform of schooling institutions would have to look like.

Figure 12: Changes in the Price of Schooling Relative to Other Labor-Intensive Service Sectors, 1970–1994[a]



Note:

[a]Difference between the average annual change in the price of schooling (UNESCO data) and the average annual change in the price of government services and community, social, and personal services (UN data).

Source: Gundlach and Wößmann (2001).

B.V Introduction to the Case Studies

The publication of the recent OECD PISA (Program of International Student Assessment) report "Knowledge and Skills for Life – First Results from PISA 2000" has created a stir and set off discussions in many of the countries participating in the study. Among other things the PISA study reveals that the socio-economic background of the students is a decisive factor in academic achievement. Those that come from a favorable background usually have a head's start over their fellow pupils when they enter school and can generally compensate for any deficiencies of the schooling system or the individual school they attend. A poorly performing educational system tends to bequeath socio-economic disadvantages from one generation to the next.

The four countries examined in greater depth in this paper are all located in Central Europe and are currently negotiating their accession to the European Union. Slovakia has been included due to its common recent history with the Czech Republic to analyse whether formerly uniform education systems have developed separately since the split, which common and different measures have been adopted to reform the respective education systems and which medium term outcomes of these developments seem likely.

The groundwork for this report has been done by sub-contractors located in the countries concerned. A considerable body of work on this subject already exists, done by such organisations as the World Bank, the OECD or CEDEFOP. This report has drawn heavily on the work done by these organisations.

In general, the central European countries have a good reputation on educational performance, in particular in mathematics and the sciences. Spending on education under the old regimes was high, with larger teacher forces. Nonetheless, the workforces produced by the educational systems of these countries have proved ill-prepared to meet the challenges facing market economies en route to the "information society". A recent report by the World Bank (2000) identifies a number of causes for this phenomenon:

- Emphasis on "memorised factual and procedural knowledge", which may have been adequate in planned economies but definitely is not in volatile market economies, which require "strategic skills, such as knowing-how-to-learn skills, problem solving skills, and evaluative skills". (World Bank, p.7)
- Education systems were formerly characterised by early specialisation immediately following basic education while flexible production requires broader knowledge and skills. (ibid.)
- There is little measurement of "service delivery", in particular information on this is not made available to the public.
- Inefficient use is made of inputs, in particular of budgets.
- Education systems inherited from command and control regimes tend to consume more resources than are genuinely needed to attain their goals. This applies to salaries for the teaching force as a whole, heating, non-teaching services and goods, and maintenance of buildings and equipment.
- While teaching forces tend to be extremely large with a superficially extremely favorable teacher to student ratio, teachers are generally poorly paid with the consequence that qualified personnel is leaving the teaching profession and that the profession is unattractive for bright university students. This situation is aggravated by lack of attention to and resources for pre-service and in-service training of teachers.
- The systems in place for governance, management and accountability are inadequate.

Most of these factors have been validated in empirical studies and are relevant decision-makers in the countries concerned. This report will attempt to examine

- whether these factors have at all been recognised and acknowledged in the countries covered by this study or whether the reforms implemented in these countries are rather serving to perpetuate the deficiencies of the former system;
- the initial impact of the reforms effected to transform the education system to meet the challenges of transition to market economy in times of the increasing importance of knowledge.

B.VI Educational Reforms

A new report of The World Bank to the education systems in transition countries summarizes, that their are five shared problems (World Bank 2000, p. 8):
"1. *Alignment*. As touched on above, educational quality is contextual; it is not a constant under all conditions. ECA education systems that were a good fit with planned economies and authoritarian political systems do not fit open market economies and open political systems well."
"2. *Fairness*. Education is an important mechanism for reducing and preventing poverty. Differences in children's learning opportunities are emerging in ECA at that very point in the region's history when human capital – summed up as skills and knowledge – increasingly determines individual and family income and the probabilities of intergenerational poverty.[26]"
"3. *Financing*. ECA countries have to realign the financing of their education systems with fiscal realities without jeopardizing the fairness and quality of education services. Their failure to rationalize the financing of education systems is eroding the achievements of the pre-transition period and undermining the sector's ability to respond to the challenges of a market economy."
"4. *Efficiency*. Most ECA education systems use inputs inefficiently. These inefficiencies are the legacy of centrally planned economies, where allocation decisions were made in physical terms without the intermediation of prices or budgets."
"5. *Governance, management, and accountability*. Most ECA education systems do not perform well against standards of transparent and effective governance, efficient management, and vigorous accountability to a range of stakeholders. The sector is still dominated by government, inadequately counterbalanced by competition (choice) and participation (voice)."
These fields are visible in the case studies of this project in different ways. To understand this, it is necessary to give an short characterization of the educational systems before transition.

The educational system before transition

Prior to the upheavals of the late 1980s and early 1990s, the education systems in the countries concerned were shaped largely by the central government and its policies. This was the result of the structures existing in these countries, which strongly emphasised centralisation at the expense of the autonomy of regions and local communities. Symptomatically, a report by the World Bank Institute (see Fiszbein 2000) on transition societies in Central and Eastern Europe has the words "decentralizing education" in its title.
The *Czech Republic*, following its independence after 1918, had a democratically organised, regional system of education emphasising the participation of the actors until occupation by Nazi Germany in 1939. The Communist regime established in 1948 centralised control of education.

[26] Human capital results from investments in individuals that increase their future welfare by increasing the efficiency of their future consumption and productivity. These investments include, but are not limited to, education and training.

True, the educational system was managed by regional and district national committees, but these were supervised by the Ministry of the Interior and the Communist party (cf. Fiszbein 2000, p. 44). There is currently sectoral management in place and there are discussions on whether to replace this with direct responsibility of the regions and municipalities.

In *Hungary* a certain tradition of centralisation was inherited from the Habsburg monarchy, although decentralisation tendencies at the municipal level may be traced back to the late 19th century. The municipalities were already partly responsible for elementary education. Despite this promising start, the development of Hungary was characterized by tensions between centralist and decentralising tendencies. In the late 1930s, there was a marked trend towards centralisation which was consolidated during the post WWII period. A process of decentralisation began as early as the 1960s, leading to a weakening of the central administration. The regions were responsible for education and school infrastructure planning. By the early 1970s, local councils were responsible for school maintenance and from the late 1970s on, secondary vocational training was the responsibility of the 20 regions. In the early 1980s, education, health care and social affairs were administered by the municipalities. School autonomy was already being recognised in the 1980s, when separate responsibility for educational inspection was introduced.

Following the first free elections of 1990, local councils in Hungary were replaced by politically autonomous local government, which gained responsibility for state-owned schools. Central curriculum control was slackened in 1993, although the general framework is still determined by national requirements. Implementation takes place locally and is the responsibility of local administrations and the schools themselves. Thus in Hungary, the structural conditions for reforms requiring decentralisation were already quite favorable.

The share of the Hungarian GDP spent on education was formerly greater than the OECD or the EU15 average. The number of students graduating from college was traditionally relatively high, although the number having a university degree was low.

Poland's pre 1990s educational system was highly centralised. During the following years many powers have been transferred to the local government level, including responsibility for education services. There are now three levels of government below the national level: provinces, districts and municipalities.

In *Slovakia*, the pre 1990 development was obviously similar to that of the Czech Republic.

Current problems for education

The report of the World Bank points out, that there are two dimensions to the challenges for the educational systems in Central and Eastern European Pre-Accession Countries (PACs): these systems must respond to the new *economic* and *civic* imperatives of emerging markets and open societies, "because these changes will dramatically affect the knowledge, skills, and values that citizens need" (World Bank 2000, p. 13)

The economic imperative is stressed mainly on account of the fact that PACs are moving (at different rates) from centrally planned economies to market economies. The shift will increasingly require workers with better information-processing, problem-solving, and knowing-how-to learn-skills.

On the other hand, there are two attributes of a civic society, which have their importance for economic growth: firstly a strong body of civic institutions that provide the transparency and accountability needed to attract investors. Secondly a shared commitment, across social divisions, to the rules of social participation, thereby increasing trust and social participation. (cf. World Bank 2000, p. 13)

The education systems in Central and Eastern European Pre-Accession Countries (PACs) are not only being confronted with the challenges of educating citizens to cope with the demands of increasingly global and knowledge and information based societies, but also with those of the transition from planned command-and-control socialist economies to a free market economy. This means

that the ideology guiding the development of the educational systems has disappeared virtually overnight to be replaced by a new set of values and goals rooted in liberal free-market traditions. These are obviously alien to the upbringing and experience of most actors responsible for education, including policy makers, teachers and evaluators. This means that there will be a danger for some time to come that the changes in the overall framework for education will be understood to varying degrees by those concerned, leading in some cases to superficial changes not adequate to meet the intended underlying goals.

A major bottleneck will be the financing of the educational system to make the changes regarded as necessary. Although investments in education promise manifold returns at a later point in time, need for costly reforms comes at a time when the entire economic systems of the countries are in a state of upheaval and money for virtually everything is short. This situation is aggravated by the fact that the countries concerned are being reformed rather than revolutionised. Many structures created by the old system are still in place, creating a set of commitments and obligations, so that the amount of money genuinely free for reform measures is extremely limited. A case in point are teacher salaries: from the financial point of view the most effective solution would be to dismiss a large number of teachers who are not up to the mark, but since these are civil servants or public employees with life-long contracts, there are strong legal and political barriers to doing this.

The necessary reforms can thus only be speeded up with funds other than those provided by the central governments. Since responsibility for education is now largely at the level of municipalities or communities, finding supplementary funding for education at this level will almost inevitably lead to disparities and thus to a divide in opportunities for the best available education.

Richer regions will be able to pay more for education and thus provide better services, e.g. by offering above-scale salaries for better teachers, by providing free and better text books, by providing and maintaining a better infrastructure.

Wealthier parents will be able to secure better education for their children by sending these to private schools offering better pay for good teachers, where these are available, paying privately for better infrastructure and learning materials, or by buying additional schooling to that provided by the state, e.g. private courses for foreign languages. If parents have to pay part of the costs of education as a matter of course, e.g. meals or text books, this can have the impact of forcing children from poorer families to terminate their schooling before they have achieved their full potential.

In countries with large rural areas, such as Poland, there is the additional danger of a divide between urban and rural districts.

The new legal framework

The major changes in the legal framework are related to the transfer of responsibility down the line from central government level to the communities. In all four of the cases concerned, the central government has retained at least some responsibility for education. Most frequently, this includes the setting of an agenda for education in the shape of a national framework curriculum. The individual differences will be dealt with in the sections to come. Another reform which seems to be common to Central and eastern European PACs is a rise in the maximum age for compulsory schooling. In the past, compulsory schooling ended with the transition to vocational training (apprenticeship), which in some cases was as early as 15. There are now uniformly 12 years of school attendance and this coincides with the assumption of responsibility for vocational training by the state, at least in the shape of determining a framework to be filled in partly by industry.

B.VII New educational systems –responsibilities and problems

Czech Republic

In the *Czech Republic*, 14 self-governing regions were created in 1998, going into function at the beginning of 2001. In addition, there are some 86 districts and 6,200 municipalities.

Since 1995, basic school has consisted of 9 grades with compulsory schooling up to the age of 15, although most pupils add another two years. Secondary education has been diversified and decentralised. A total of 90% of all young Czechs receive various types of secondary education. However, only 17% receive secondary education entitling to studies at universities, one of the lowest figures for OCED countries.

The Ministry of Education, Youth and Sports is responsible for the management of all levels of the education system, including most branches of vocational training. It creates and runs state-owned secondary schools, hires and fires the school principals, approves textbooks and provides subsidies for the purchase of textbooks. It distributes the lion's share of the funds for education, while the Ministry of Finance gives a smaller sum directly to the municipalities.

The districts have school offices reporting directly to the Ministry of Education, linking the central government with the municipalities and the individual schools. The district school office is the local representative of the Ministry, a mid-level organisation for the management of pre-schools, primary schools and part of secondary level education. It is responsible for the allocation of State funds distributed on the basis of numbers of students and type of school. The school offices are responsible for the appointment of school principals below secondary level and pursue very different approaches in their work, ranging from autocratic to democratic, with some displaying considerable creativity in supplying services, improving financial management etc., while others simply "operate". The Ministry of Education has recently developed guidelines for and dissemination of best practice at district school office level.

The municipalities are responsible for the pre-schools and primary schools and also for enforcing compulsory school attendance. The state pays for staff salaries, textbooks and learning aids. School maintenance costs are borne by the municipalities from local taxes and local fee-based revenues.

The ministry can monitor education quality and school conditions.

School councils were introduced in 1993 as an afterthought to the reforms of 1990. These councils are composed of teachers, parents and other important partners. They have review powers and can influence fundamental decisions on school activities, but they cannot intervene directly in the management of the schools by the principals, who are not a member of the school council. These councils are viewed within the country as an area of long-term potential development.

The district school councils consist of representatives of the municipalities or school owners, parents and teachers. They are currently seen as a forum for fairly theoretical and formal discussion of district school affairs.

The schools themselves have had greater autonomy with respect to administration, finance, and staffing since the reforms of 1990. The school principals are responsible for the quality of the pedagogical process, financial management, recruitment of teachers, and relations with the municipalities and students' parents. Secondary school principals are selected by the Ministry on the basis of competition. They are evaluated by the inspectorate and the school's council after a term of four years.

Secondary schools are legal entities, which gives them a large degree of administrative and financial autonomy. It is hoped that this autonomy will increase effectiveness. Schools are entitled to modify their curriculum.

A White Book published early in 2001 and covering the period 2005 sets a target of 6% of the Czech GDP for spending on education. It foresees the implementation of lifelong learning for all and special measures to come to terms with the challenges of the information society, such as a special cur-

riculum, two foreign languages as the standard, the incorporation of education in state policies for information technology, the development of cross-curricular key courses. The other reforms include measures for monitoring and quality assessment, and the development of new roles and professional perspectives for teachers. The areas specifically mentioned here are pre-service and in-service training, career prospects and minimum academic requirements for teachers. A target of 13% above the national average is set for the salaries of teachers. Finally, the White Book calls for a transition from centralised management to accountable shared school decision-making.

Hungary

In *Hungary*, the regions, which were formerly units of central power, lost part of this power with the creation, in 1990, of largely autonomous local governments, which are not responsible to the regions. There are 20 regions, or counties, including the capital. County governments are obliged to supply education to students if local governments are unable to do so, e.g. facilities of regional importance.

Several Acts have been passed on education and training, notably

The Public Education Act (1993)

The Vocational Training Act (1993)

Responsibility for the administration and financing of education is shared, and at times divided and confused, responsibility, both between levels of government and between sectors of government, particularly at the national level.

Kindergarten attendance from the age of 5 is now obligatory as are 6 years of lower and 4 years of upper grade education. There are uniformly four grades of elementary school, four grades of lower secondary school, which are followed either by four grades of upper secondary education, 3 years of apprenticeship or 2 years "specialised schools". There are over 3,000 local governments, the number of which is declining slightly. 2,400 of them maintain educational institutions, over 1,800 eight grade general schools providing education for the 10 to 14 age bracket.

More than 55% of all schools operate in communities with fewer than 2,000 inhabitants. More than 200 local governments maintain secondary schools for pupils in the 14 to 18 year old range. The full range of education opportunities is only available in the larger towns and cities.

The churches and foundations have been able to operate schools in addition to the state since 1990.

The Hungarian Ministry of the Interior is responsible for local governments and disburses about 95% of state grants for education. Financial support is directed mainly to the school maintainers – local governments, churches, private bodies, such as foundations -- who then distribute these funds among the schools they maintain. This is usually done on the basis of a set of indicators, including numbers of pupils by grade, educational program and type of school. Grants cover only about half of local education expenditure. School maintainer's grants and local revenues cover the balance. Local governments spend approximately 30% of their total annual budgets on educational spending not covered by the grants from the central state. This means that the wealthier municipalities are able to provide better education. Up to 1% of income tax can be donated to "school foundations" created for this purpose. Private maintainers receive the same basic level of support as community-owned schools plus supplementary support provided by the state. They cannot levy school fees. Despite a policy of ensuring equality, there are no funds earmarked for the development of disadvantaged areas.

The law requires 7% of all educational spending to be for materials to develop public education programs, e.g. new technologies, in-service training for teachers and regional provisions. All financing is monitored by the National Auditing Office, which reports to the parliament.

There are certain tensions between the regions and municipalities in Hungary, possibly as the result of the new-found autonomy of the municipalities. While the region fulfils a back-up function of having to supply education that the municipalities are unable to, county income depends to a greater

extent on central state support than local governments, since they have no independent rights. Although the local governments have been principally responsible for general education since 1990, they are increasingly looking to share this responsibility with other actors for a number of reasons:

- Reduced public resources,
- A steady decline in the number of school-age children,
- The introduction of county-level public education.

There is a degree of confusion at the secondary level since regular schools are eight grade, but "reformed" high schools offer two to four grades of the senior section of "general" schools. This curbs opportunities for continuing academic education of those graduating from regular 8-grade general schools. There is a reform intention, but its implementation is left to the discretion of the local authorities.
Freedom of choice leads to preference of general high schools and vocational secondary schools over vocational training schools. Favored schools have entry examinations and can pick students from a large number of applicants, which can be 8 to 10 times the number of places.
School infrastructure is mainly the responsibility of the local governments and schools are frequently in poor condition. The central government regulations provide a very loose framework, and thus contributes to this situation. In vocational education, there are additional problems due to the fact that responsibility is now shared between two ministries.
There is a pressure from the public, mainly parents, to maintain the current level of expenditure on schooling despite declining student numbers.

Poland

In *Poland*, the length of primary education was shortened to six years, which are followed by three years at the uniform gymnasium, a newly introduced form of school to provide lower secondary education. It is after this that differentiation into different academic streams takes place, with 5 separate streams.
The reform of education is changing the system into a four-part system. The reform itself was conceived in two steps. The first was the introduction of the gymnasium to replace classes seven and eight of elementary school and the first class of the old lycée. This step was taken in 1999, so that at the end of the school year 2001/2002, the first pupils will finish their gymnasium.
Because of this, the second step of reform is now set to start from September 2002. This step consists of converting existing lycées, technical schools and professional schools into specialised lycées and professional schools (with the charge to cooperate with the regional labor office to prevent unemployment of alumni). Passing from one level of school to another will be as the result of centralized exams – the first taken after six classes of elementary school (including a centralized graduation exam with a central commission of verification to replace the old graduation with a school commission and exams for university entry).
The central government has retained control over the bulk of educational management with responsibility for the determination of a core curriculum, public schools statutes, pre-school programs, the approval of conditions and procedures for programs, textbooks and teaching hours. The central government also appoints the Central Examination Commission, which sets standard requirements for testing at the various levels of education, as well as the provincial superintendents, who supervise pedagogical practice on behalf of the ministry of education.
Since 1997, there have been 3 levels of self-government below the central level. These are the province, the newly created districts and the municipalities. Forty to sixty percent of all expenditures at the municipal and district levels are related to educational purposes.

The municipalities operate pre-schools, primary schools and the gymnasiums (colleges).
The districts operate secondary schools, vocational schooling and counselling and guidance services.
The provinces are responsible for teacher training institutions, which are supervised by the superintendents.
On average, the municipalities add 11% to the state educational subsidy for wages and maintenance coming from the Central Government. They can set their own rules for allocating money to schools and empirical evidence suggests that there are considerable differences, e.g. approval procedures for budget proposals from the schools, salaries of staff, weighted lump sum per student according to type of school etc.
Schools may rent out facilities to supplement their funding, but this cannot be used to supplement salaries. The potential for raising additional funds by this means obviously varies a great deal according to location and condition of the school facilities.
The principle that the "money follows the pupil" has been implemented by basing the nationally determined educational subsidies on the numbers of students weighted by type of school.
Policies for allocating subsidies have been used to attempt to foster the rationalization of the school network, which is considered as too large, especially in the rural areas.
Private schools also receive a state subsidy, which is lower than that given to the public schools, but there are complaints that the administration procedure for these grants is ineffective.

Conclusions

One of the dangers of reform attempting to decentralise responsibility is that in some cases there are areas of overlapping or unclear responsibilities for certain aspects of the educational system. In some cases, the reforms have created new types of school which are competing with schools created by the former system which have not been abolished.
In the Czech Republic, the central authority has retained a degree of control by keeping responsibility for the appointment of secondary school pupils. At other levels, certain responsibilities have been delegated to local school offices, which do however report to the central ministry. Management has been largely delegated to the schools themselves, in particular the secondary schools are legal entities.
In Hungary, most responsibility is at local government level. However, responsibilities have not yet been assigned sufficiently clearly between the regions and the municipalities, so that there is possibly a negative impact on effectiveness of resource use.
In Poland, the central government has retained much control over education including the appointment of provincial superintendents for education. Funding for primary education is allocated to the municipalities, while that for secondary education goes to the districts. From these levels, the funds are distributed to individual schools, where the principal is responsible for use of the budget.

B.VIII Organisation of the Educational System

Non-discrimination of minorities or the disadvantaged is widely regarded as an important factor in avoiding social unrest and thus in ensuring favorable conditions for economic activity. It is also a great waste of economic potential if gifted or talented students fail to achieve their full academic potential due to lack of finance or equal opportunity for access, due to living in a rural or de-industrialized area.
Depending on responsibilities and funding policies for education, there is a danger that discrimination of regions or localities could take place, or that students from low-income families will be barred from quality education by high school fees.

An important aspect here is also the organisation of education following the post-primary level, i.e. whether students' academic careers are determined once and for all times through at entry into the secondary level or whether the system allows for "second chances".
The World Bank proposes central revenue generation for education with local administration and control of education spending as the adequate solution. This means that funds given by the central government to local authorities should be earmarked specifically for this purpose and that it should not be at the local administration's discretion to divert funds reserved for education to uses for other tasks.
There is a dilemma facing financing of education in the shape of increased costs and declining budgets. In the case of costs it is more a question of the true costs revealing themselves, e.g. for the heating of school buildings or for text books, which were previously publicly funded, and thus usually heavily subsidised, but are now increasingly shifting into the commercial-private sector of publishing. Due to the large proportion of the budget already committed to fixed costs, such as teacher salaries, there is a danger that public funding will be insufficient to cover such costs where a choice does still exist, such as providing text books, maintenance of school buildings and infrastructure etc. There is the possibility of generating additional regional/local funding for education, e.g. through some kind of contribution from the students or their parents, although this obviously creates barriers to equity:
- Text books to be purchased by the students or their parents;
- Tax relief for donations to educational facilities, which are registered as charities;
- Generation of income by schools by selling services, such as courses, to industry or the public at large, or by renting facilities, such as school laboratories;
- Provision of grants to students to be repaid later when they have employment;
- Supplementary funding from local authorities. This would obviously advantage the richer regions and communities.
In some countries, fees of any kind for school attendance might be unconstitutional if it creates major inequalities, e.g. by barring certain students from access to the full range of education. Another question is whether parents should bear a greater burden for the education of their children than the childless, since education contributes to ensuring the continuity of the existing social security system by providing a supply of adequately skilled labor to pay into pension funds.

Czech Republic

In the *Czech Republic*, primary schools are financed mainly at the municipal level, although the funds themselves came mainly from the central level. Secondary schools are primarily the responsibility of the Ministry of Education. The municipalities seldom establish their own secondary schools. There are also non-state schools, which have greater independence. These receive a partial subsidy, currently in the range of 60 to 90 percent of that for a student in a state-owned school. They can collect tuition fees, freely determine teacher and other salaries etc.
Vocational training was formerly linked very strongly with the large state-owned enterprises and their needs for labor. There are now apprentice schools, which are the responsibility of the Ministry of the Economy.
Pre-school establishments include crèches and nursery schools:
Crèches: For children up to 3 years of age. They are administered by the Ministry of Health of the Czech Republic.
Nursery schools: Usually for children between 3 and 5 years of age (also for younger and older children, depending on local conditions).
The system of basic and secondary schools: basic school, vocational school, secondary vocational school, grammar school, secondary technical school, and special school. Basic and secondary

schools are established as government schools (free of charge) or non-government (private or church) schools.

Basic schools: Compulsory education for all capable children usually starts at the age of 6 and takes nine years. The first stage of basic school originally took four years and was extended to five years by an amendment to the School Act of 1995. The second stage took five years and the amendment shortened it to four years. The last four or two years of compulsory nine-year school attendance can be finished at an eight-year or six-year grammar school or at dancing conservatories.

Secondary schools: Provide learners with knowledge and skills needed for occupations or further study. As a rule, secondary education started at the age of 14 in the past. Now that the compulsory ninth form has been introduced, it starts of the age of 15 and takes one to four years, depending on the type and subject of study. The exception includes multiple-year grammar schools and dancing conservatories. These schools include the following:

Grammar school: Provides full secondary education during four, six or eight years of study. It is completed by the General Certificate of Secondary Education (GCSE) and focused on the preparation of its pupils for university studies in particular.

Secondary technical school: Takes usually four years and prepares its pupils for technical and other specialised practical activities, as well as for study at universities. The four year study is completed by the GCSE. The school can also offer study in shorter subjects, but these are not completed by the GCSE. A specific type of the secondary technical school are performing arts schools, where singing, music, dancing and drama are studied. They usually have 6 to 8 forms, are completed by a final examination and provide higher professional education.

Secondary vocational school: Prepares its pupils for manual occupations over 2, 3 or 4 years. The study is completed by a final examination. Schools where learners study for 5 years provide full secondary technical education and are completed by the GCSE.

Integrated school: Introduced in school-year 1994/96 as a new alternative form of the preparation of young people for occupations; it prepares its pupils in subjects of both secondary technical schools and (secondary) vocational schools. As data for these schools ceased to be measured separately from school-year 1998/1999, they are shown with both secondary technical and secondary vocational schools. The data are fully comparable with those published separately in the previous individual school years. Depending on how he pupil does at the school, he/she may switch from one form of preparation to another (from secondary technical to secondary vocational and vice versa).

Higher professional school: These provide a new type of post-secondary study. It came into being in response to an amendment to the School Act of June 1995, after it had been tested for function for three years. The GCSE holders are prepared over two to three and a half years for qualified execution of demanding technical activities. The school provides higher professional education, the study is completed by a final examination, and the graduate is entitled to use the designation of higher professional school graduate after their names.

Special Schools: Designed for children and pupils aged 3-19 who are mentally and/or physically handicapped, with impaired hearing, vision and/or speech, with development disorders and/or, as the case might be, placed in schools established in hospitals, senatorial and therapeutical establishments as well as in reform schools and correctional facilities. Special schools may include nursery schools, basic schools, special education schools, reform schools, correctional school facilities, grammar schools, secondary technical schools and secondary vocational schools.

Universities: Citizens who have completed their full secondary general education or full secondary technical education and have proven the necessary qualifications to study further can enroll in a university (except for arts where this requirement need not be met if the applicant is exceptionally talented). The study is completed by passing the state examination part of which in some branches of study can also consist of writing and defending a dissertation (thesis).

Compulsory schooling begins at the age of 6 years and continues to the age of 15 years. At this age, pupils have two choices: one choice lets the children attend a university preparatory school and the

other choice offers the student a vocational school (mostly 3 years). The pupils that choose the university education have to spend the next five years studying at the university that offers the kind of education needed for their degree.

In 2000 there were nearly 2.172.000 pupils and students:

13,7% in Pre-Schools
51,7% in Basic Schools
5,9% in Upper Secondary Schools
7,2% in Secondary Technical Schools
10,7% in Upper Technical Schools
1,4% in Higher Professional Schools
9,2% in Universities

In 1999 in 67% of all enterprises were offering continuing vocational training (CVT) courses. 41% of all employees were trainees at CVT courses (45% of all males and 34% of all females). The mainfields of CVT are: Languages, sales and marketing, accounting and finance, management and administration, office work, computer science and use, engineering branches, environmental protection and occupational health, services.

Hungary

Hungary is a country where there is a low student-teacher ratio, thanks to its high rate of spending on education, but now due also to declining birth-rates resulting in smaller annual student cohorts.
If a local government in *Hungary* maintains more than three schools, it must appoint an education committee consisting of elected representatives and invited outside experts.
Vocational training is now more output-oriented as the result of the recent reforms, but there are no clear-cut accountability mechanisms. Even the chambers of commerce do not really know what to control or how.
Vocational training of 15 to 17 year-olds formerly practically barred the way to further studies, although theoretically the possibility did exist. The problem was that poorer standard students ended at the vocational training institutions and that much of the time there was devoted to learning much of what should have been learnt at earlier stages of education. The priority goal of studies at vocational schools was to socialise students for the workplace. The result of the old system of vocational training was a low-level output. There was over-specialisation in vocational training which resulted in workers being semi-skilled rather than genuinely skilled (see Csákó, p. 6). The technology employed in Hungary during the 1960s and 1970s was mostly obsolete, meaning that experience gained with this was only of limited value for the future.
This specialisation has since been moderated by streamlining into 13 basic trade groups. Half of the vocational training schools have since made a switch. Two prominent past examples were shorthand typing schools or schools of nursing. The functions of these schools are gradually being absorbed by vocational secondary schools. The future of vocational training schools is uncertain and depends on the profiles of reformed secondary and vocational schools. Ties between schools and specific enterprises have now been loosened. Large enterprises, especially the multinational giants, have recently tended to set up their own training centres.
Positive developments in vocational training have only been visible since 1994 when the reformed system of education had its initial impact. There is, however, a lack of awareness of the importance of structures and institutions for the implementation of programs pursuing certain educational goals.
The real turning point in Hungary seems to have been in 1986/87: People who graduated in and after the 1987 – 1989 period were fortunate enough to receive a kind of education which proved to be very useful in the market economy" (Kertesi, Köllö, p. 10).

The central gov .mment regulates the school entry age, the length of compulsory education and responsibilities. Local governments determine the profiles of educational establishments and the length of secondary programs connected with basic schooling.
Inadequate monitoring information and statistics make planning difficult for all parties, including parents who have the freedom to select schools for their children.
The transition from primary to secondary education is an urgent educational problem. Specialised vocational training is now possible from the age of 16 and this creates an overlap of two years with the general secondary level.
High schools have traditionally been the base for universities, but more recently they have added practical aspects to the curricula, so that the employment prospects of school leavers not going to university have improved against the former situation.
The higher education institutions, mainly colleges, have started offering two year "high-grade" courses which entitle to high school or university education. These are paid by fees and not officially recognised. They are important as a means for the generation of additional revenue. There is a dilemma existing here, since if they were recognised, they would have to be paid by the state as part of general education.
Under the socialist regime, adult education was intended to provide special advantages for workers. It was in general less demanding in its requirements than general school. The transition has brought with it new demands, such as lifelong learning, flexibility for the market economy. The number of students in adult education stayed at the same level for many years until a sudden boom in 1995.
There are indications that up to one third of each age cohort drops out of regular education. These persons are economically jeopardized, so there is a need to ensure at least a basic minimum level of schooling.
Decentralization has undoubtedly given more flexibility to the system, stimulated local initiative, encouraged schools to open themselves towards the outside environment and to cooperate. But at this stage it seems to have reached its limits in some areas, and the time has come to find the right balance between decentralisation and some degree of central regulation, if national objectives are to be achieved. (cf. OECD 1999, p. 35)
Two key problems however remain unresolved. The first is the lack of any formal and widely promulgated mechanisms to allow young people who are in the lower vocational (trade) pathway to move to the secondary vocational pathway or the general education pathway, as a result of which the lower vocational pathway can become an educational dead end. The second is the one third or more of those who complete general secondary courses and who are not admitted to tertiary education. (cf. OECD 1999, p. 40).
The current Roma population in Hungary accounts for c. 4.4% of the population, but this share might increase to 10% by 2010. The Roma minority currently has an unemployment problem. There are 11 minority self-governments which have the right to fund and maintain schools. They have veto powers in connection with minority education affairs.

Poland

In *Poland*, the pre-schools operated by the municipalities tend to rely fairly heavily on financing by the parents of pupils. This obviously raises the issue of inequality.
Primary schools are paid by the municipalities from funds originally allocated by the central government on a per-pupil basis. This is modified with factors by task and special function of the school, such as catering for ethnic or social minorities. The formula has been simplified from its original shape.
The gymnasiums are a newly created type of school providing uniform lower secondary education and are also the responsibility of the municipalities, which allot funds to individual schools. They

can provide additional dedicated funds for certain school activities, extracurricular lessons and merit payment above scale for teachers.
Using funds provided by the national ministry of education, the province superintendent plans investments for primary education.
Primary schools and gymnasiums may create special funds to generate tax-free revenues earmarked for financing non-salary expenditures. The most common means of generating such revenue is to rent out school space for evening courses or other events.
Parents of primary and lower-secondary grade students are required to pay for meals, textbooks and dues for parents' committees. They also pay extra-curricular lessons, which are a means for teachers to supplement their salaries.
The newly created districts have been responsible for secondary education since 1998. At this level, there is a distinction between lycées, technical schools, and basic vocational schools. The lycée has 5 separate profiles, one leading to university, the other four being the basis for further vocational training.
The main idea of the new elementary school (with pupils aged from 7 to 13) is activity. Schools should show their pupils the complexity of the modern world, the human's place in the environment, society and culture. There is no separation into separate subjects, but knowledge is divided into several blocks such as a humanistic block (containing literature, history, knowledge about society), a mathematics block (mathematics, physics, astronomy), environment (biology, geography, chemistry).
The gymnasium has the goal of promoting the individualism of pupils. Three years of learning at the gymnasium (with pupils aged from 13 to 15) should give students a good language background and knowledge of different areas of human activity. On this level of education, the topics are the same as academic topics to provide pupils with a background for better understanding of the surrounding world and to teach them skills for studying scientific disciplines.
The specialised lycée is designed to promote the maturity of students. It should help to develop the pupil's own intellectual equipment, develop skills in the analysis of problems of the modern world. This grade of school is designed to help young people make decisions about their future education and future lives.
After finishing gymnasium, most young people will go to 3-year profiled lycées. Each lycée has at least two profiles. There are five types of profiles:

1. pro academic (preparing for study in high school/university)
2. environmental and agricultural
3. culture and arts
4. social services
5. technical

The pro-academic profile will be obligatory for every lycée. 80% of lessons will be the same for each profile. These 80% form the so-called canon (Polish language, history, physics with astronomy, mathematics, geography, biology, foreign languages, knowledge about society, chemistry, entrepreneurship, information technology, philosophy, ecology, regional and European education, religion, sports). The remaining 20% will be lessons specialised for each profile. Pupils will have to chose 3 additional courses from their profile. For the pro-academic profile additional courses are: the Polish language, a foreign language, history, knowledge about society, mathematics, physics with astronomy, chemistry, biology, geography, computer science, languages of national minorities or ethnic groups, basis of professional activity. For the technical profile: materials, processes of designing and production, exploitation, basis of professional activity. The environmental and agriculture profile will offer: the environment and its resources, human activity in the environment, legal-organisational basis of environmental resources economy, basis of professional activity. For the culture and arts

profile: history of culture and art, regional culture, culture animation, basis of professional activity. And last but no least, the social services profile: social services activity, interpersonal communication in social services activity, client service, basis of professional activity. Because of the existence of the canon, there will be the possibility to change profiles during the years of learning.
In place of the existing 3-year vocational schools, there will be 2 or 2,5-year vocational schools and pupils who complete these schools and wishing to go on to high school will have to complete 2 years' supplementary lycée to have the possibility to pass a maturity exam. One third of the vocational school program will be general education (two blocks: humanistic-social sciences and mathematics and environmental sciences and lessons like religion, management, sports) and the remainder will be professional vocational lessons and practices. At the end of vocational school there will be an external exam. The first such vocational exam will be in 2004. The choice of professions taught in a certain vocational school will be made by the directors of school and the regional labor office to avoid perpetuating the current situation in which many schools leavers are unemployed.
The district allocates its funds to the individual schools. At school level, the principal is responsible for allocation and use of the budget. Parents again pay for students' meals, textbooks, extracurricular lessons and parents' committee dues. They may also co-finance educational investments.
The provincial superintendent oversees the implementation of central ministerial policies, exercising legal control, evaluating and assessing. He or she is also responsible for the operation of teacher training colleges and of centres for lifelong learning.

Slovakia

In Slovakia, there have been reforms to the educational systems which have produced a result contained in the following table.

Table 3: Results of the reforms to the educational systems in Slovakia

	Description	Grades in educational system
0 Pre-school stage (Preparation for elementary school)	Curricula developed for children aged 3 to 5 years Entry age: 3 Followed by stage 1 of basic education	- Kindergarten - special Kindergarten - Preparatory classes for elementary school - Preparatory classes for special elementary school
1 Elementary school (1st stage of basic education)	The curricula for the beginning of elementary education are also the start of systematic education Entry age:: 6-7 Duration: 5 years According to type of school, continuation with stages 2A or 2B	- the first stage of elementary school: grades 1-5 (1A) - the first stage of specialised elementary school: grades 1-5 (1B) - specialised elementary school
2 Lower secondary school (2nd stage of basic education)	Curricula are directed towards the termination of basic education and beginning specialised education: laying the foundations to lifelong learning Entry age: 10 –11 Duration: 4-5 years Curricula are developed for pre-specialist education and elementary specialist education	-second stage of elementary education: Grades 6-9 (2A) - Grades 1 to 4 of the 8 grade high school (2A) - Classes to supplement lower secondary education (2A) - second stage of special schools (2B) - Grades of secondary school for preparation of specialisation (2C)

	Entry age: 15 -16 Duration: 1-2 years Continuation with stage 3	- First grades of specialised secondary schools (2C) - Practical schools
3 Secondary schools	Curricula developed especially for studies following the completion of compulsory education; they are developed with view on the fields of study of secondary schools related to beginning work and further education. Entry age: 15 –16 Duration: 3-5 years (in vocational training schools 2 years) Continuation with stages 4 and 5.	- four-grade high school (3A) - 5th to 8th grades of the 8-grade high school - subjects of the secondary specialist schools concluding with university entrance examination - subjects of specialised secondary schools leading to final examination (3C) - Re-skilling courses leading to final examination (3C)
4 Specialised higher secondary education	Curricula developed for studies of broad and deepening contents; suitable for the specialisation in a subject, for future employment and for continuing education Entry age: 18 - 20 Duration: at least 1 year	- Subjects of higher-level studies in specialised secondary schools (4A)
5 Specialised higher education	Curricula developed for studies at specialised secondary schools and institutes of higher education, gaining a new qualification or to supplement a study subject Entry age: 18 –20 Duration : minimum of 2 years	- Specialised studies at secondary schools following graduation - final grades of the conservatories

Conclusions

It has been suggested that the existence of privately managed schools boosts the quality of education. While such schools do exist in some of the PACs, there is little data on their quality or their impact on the educational system as a whole.

In all of the countries concerned, the educational system has been reformed considerably, in particular at the secondary stage. In Poland there have been quite radical reforms of primary education to the extent that individual subjects are no longer taught separately. Particular attention has also been given in the countries concerned to vocational education and training, where reforms are changing the educational system to provide broader knowledge and skills providing a basis for life-long learning. Another aspect of this is avoiding specialisation too early in life. In Poland the educational system has been reformed to include a uniform secondary stage of education, so that pupils' future careers are determined at a later age than in the past. Attention is also being given to achieving openness, permitting transition from one stream of education to another.

In most cases, it is still too early to determine the impact of the reforms and in some countries, the transformation process is still ongoing. The PISA report provides data and the opportunity to correct or re-direct this process where necessary. A possible problem, indicated by the opportunities of schools to find their own supplementary funding, is providing adequate funding for a complete and convincing reform. Another major problem appears to be conscious or unintentional resistance to the reforms in the shape of protection of vested interests by stakeholders, such as teachers or parents, lack of awareness or understanding of the true intentions of the required changes.

B.IX Content and Curricula

According to the World Bank analysis, the syllabus for any grade of school in the PACs tended to include a large number of subjects. This breadth led to superficial learning since the learning material was presented more as facts to be memorized than as a set of building blocks and flexible tools. Curricula also tended to focus more on the content than on knowledge and skill standards:
"In the information age, recollection of facts has become significantly less important, with the advent of the Internet and easily accessible printed materials, while the ability to interpret and evaluate information has become more important." (World Bank 2000, p. 20f.)
From this viewpoint, the content and the curricula must include the following (cf. World Bank 2000, p. 20):

- Knowledge that is broadly based, allowing a flexible response to change
- Solid foundation skills that support future learning
- Adequate meta-cognitive skills (knowing-how-to-learn, or executive thinking, skills) and higher order cognitive thinking skills
- Substantial experience in applying knowledge and skills to unfamiliar problems
- Habits of exercising choice and voice
- Respect for differences and for shared rules of citizenship the grounds for trust and cooperation.

In the role model certainly predominant in the past and possibly inherited due to its deep roots in the thinking of the teaching force, the teacher is the expert while students are passive receivers of information (op. cit. p.22).

Czech Republic

In the *Czech Republic*, there are basic educational standards for the development of curricula set for individual types of school up to the secondary level. Secondary schools have the freedom to modify or develop their own curricula.

Hungary

In *Hungary*, the Ministry of Education and Culture was responsible for the definition of a basic curriculum and other standards until 1998. There was formerly a single national curriculum, which was abolished in 1993. Since this date, the Ministry has been responsible for regular and vocational education and had limited curricular responsibilities, e.g. on guidelines for education of minorities. The local governments and the individual schools now have considerable latitude in determining local curricula, selecting textbooks or devising examinations. Final examination requirements set guidelines for grades 11 and 12 of schools. The schools define their own local curriculum within the framework of a program at national level. They frequently do this by borrowing or adapting existing curricula. Only about 10% of schools develop their own curriculum. The curriculum is approved by the local school maintainers following the consent of government-appointed public education experts.
The ministry has little responsibility for school building and equipment maintenance, but provides support for the development of local plans.
The national Public Education Council is a professional body that prepares decisions, drafts opinions and proposals on curricula, textbooks and examinations. Vocational education is negotiated by the social partners in the Public Education Policy Council. The schools can establish school boards to enhance cooperation between staff, parents, students and school maintainers and these must be consulted on the pedagogical program.

The quality of local curricula depends on decisions made by the schools and their enforcement by local maintainers and public education experts. School staff are frequently ill-prepared to develop or adapt programs.
The new system lacks the experience to produce the appropriate curricula or textbooks. Management tools are not yet adequate and responsibilities have not yet been clearly defined.

Poland

In *Poland*, curricula are determined by the National Ministry of Education. In the first three years of elementary education, no distinction is made by subjects, in the next three years of elementary school and gymnasium, subjects are taught in blocks. In the lycée, teaching is organised by subject, the composition of which varies by profiles of the schools.
The Ministry has established a Central Examination Commission, which sets standards for examinations at each level of education. In primary schools and gymnasiums, these examinations serve mainly to orient and guide the students, but the lycées' examinations are the basis for certificates of education, also functioning as an entrance exam for institutes of higher education.
The individual teaching programs are determined by the teachers and schools, although there is the possibility of using ready-made curricula. The choice of textbooks is also the responsibility of the schools.

Conclusions

There is no uniform finding on responsibility for curricula. In Poland, it is chiefly the responsibility of the national Ministry of Education, while elsewhere there is a degree of autonomy at the local or school level. In the cases where there is autonomy, the success varies a great deal, since there seem to be no schemes in place to prepare those responsible for the task.

B.X How to Measure the Output of Education Systems?

Most evaluations of the output of education systems tend to rely heavily on the International Association for the Evaluation of Educational Achievement's (IEA) Third International Mathematics and Science Study (TIMSS). The Czech Republic, Hungary and Slovakia are covered by this study and according to its results achieve performance levels slightly above average in the fields examined. The results confirm the good reputation of Central European countries for the quality of their science and mathematics education.
However, the report by the Human Development Sector of the World Bank (World Bank 2000) uses as its primary measure for the adequacy of education systems for the contemporary demands of the increasingly globalised market economy the OECD International Adult Literacy Survey (IALS). This survey is designed to measure an "individual's capacities to expand and interpret the meaning of verbal and qualitative tasks, using three scales" (World Bank 2000, p. 16):
Prose literacy – the knowledge and skills needed to understand and use information from texts, including editorials, news stories, poems and fiction;
Document literacy – the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transport schedules, maps, tables and graphs;
Quantitative literacy – the knowledge and skills required to apply arithmetical operations, either alone or sequentially, to numbers embedded in printed materials (ibid.).
IALS does not measure an individual's retention of specific information or to use such information in academically structured problems.

Scores for IALS display a strong correlation with probabilities of unemployment, wages and per capita GDP. In countries with strong income inequality, scores for literacy also tend to have a large amount of variance.

Three of the four countries covered by this present study participated in the two rounds of IALS: the Czech Republic, Hungary and Poland. The results of the IALS suggest that the education systems in Hungary and Poland are producing the wrong product for a market economy while that in the Czech Republic appears to be on the right track.

The differences measured in these cases cannot be attributed to the quantity of or expenditure on education. An important factor determining literacy levels in Hungary and Poland appears to be the socio-economic status of the student's parents, which implies that access to educational opportunities is not equal.

The recent OECD PISA report included the same three countries covered in this report and Latvia as a further PAC.

- In terms of reading literacy, all PACs had ratings below OECD average, but so did the current EU member countries Denmark, Spain, Italy, Germany, Greece, Portugal and Luxembourg, in that order. The Czech Republic achieved results just below OECD average, with Hungary and Poland behind Italy and Germany, but still ahead of Greece, Portugal and Luxembourg.
- For mathematical literacy, the Czech Republic ranked just below the OECD average, but still ahead of the US and six of the seven EU countries mentioned previously. Hungary performed almost as well as the US or Germany, while Poland lagged behind with an achievement level behind that of Spain, but still ahead of Italy, Portugal, Greece and Luxembourg.
- In terms of scientific literacy, the Czech Republic again performed best of the countries covered here, with an achievement level well above OECD average, ahead of the US and all seven EU countries previously mentioned. Hungary's level of achievement is only slightly lower than that of the US and the OECD average, with Poland again lagging behind slightly. In this case, the country performs slightly worse than Germany, but still better than Denmark, Italy, Greece, Portugal or Luxembourg.

The PISA results indicate that in the Czech Republic and Hungary, access to better quality education depends to a large extent on the socio-economic status of a student's parents, while in Poland, this is not the case.

The overall impression based on the results of this first PISA report confirms what is stated by World Bank in relation top IALS results, i.e. that the Czech republic educational system appears to be on the right track, while those in Hungary and Poland are performing at a poorer level than the average industrialised country. Hungary still performs reasonably well in mathematics and the sciences, possibly a legacy from its pre-reconstruction educational system. A possible explanation for Poland's results are the sheer size of the country, which will be among the largest members of the enlarged European Union, coupled with the large share of rural areas. A possible cause of problems might be decentralisation, which obviously is a greater reconstruction task than in smaller countries.

Next to the "economic imperative" the World Bank also stresses what it terms the "civic imperative". Strong civic institutions help to shape a social climate to attract both domestic and international investors. Shared commitments and convictions across social divisions related to the rules of social participation reduce transaction costs and increase social cohesion. An important function of schools is to encourage such civic objectives.

In several pre-accession countries (PACs), integrating ethnic majorities into the education systems to ensure equity of access to schooling is an important issue, although the four countries covered by this report have minorities accounting for under 20% of their total populations. While this is a small rate compared to some other PACs noted for their ethnic unrest, there is a significant Roma population in Hungary and a Hungarian minority in Slovakia, which do pose challenges in this respect.

Czech Republic

In the *Czech Republic*, the school inspectorate is a semi-independent review body which cooperates with the National Ministry of Education. It was completely overhauled in 1989, with inspectors appointed via competition from the ranks of experienced teachers. There is no specific training for the job of school inspector, with "learning by doing" the order of the day. One inspector is responsible for an average of 36 schools. There is recognised need for an improved selection procedure and for a training process as well as for standardised instruments for evaluation. Current procedures are regarded as being too idiosyncratic.

Hungary

In *Hungary*, examinations are subject to ministerial supervision and textbooks and teaching aids are listed in a National Textbook Register. Quality assurance is a ministerial responsibility, which is achieved through the maintenance of central registers of reviewers and experts.
Quality control and assessment of all aspects of the educational system, including principals, and pedagogical programs, are the responsibility of the local councils, but there are no real mechanisms in place to perform such assessments.
The heads of the schools are responsible with outside experts for the evaluation of staff, assigning duties and responsibilities within school and determining salaries above scale.
Local systems for accountability for decisions made on school curricula are weak. Reactions to negative developments are more likely in the larger communities with active middle-class parents. The experts who are professional evaluators have no instruments for enforcement at their disposal. The new system of examinations might encourage schools to adjust their curricula but raises the danger that this might create costs which local governments might be unable or unwilling to bear. A supply of textbooks produced on a commercial basis by private publishing companies exists, but testing is rare as is feedback on quality.
Quality assurance is still in the process of definition. Fragmented responsibilities make assessment a difficult task. There are no institutions in place to conduct regional surveys. The regulatory framework for assessing teaching exists, but there are no instructions on its implementation.
Recent results indicate a growing divide between student achievements in urban and rural regions.
Hungary participates in various international assessment and achievement programs, including TIMSS and PISA.

Poland

In *Poland* evaluation is the joint responsibility of the local administration at municipality or district level and the provincial superintendent. If there are any differences of opinion, these are resolved by a specially composed joint committee. There is however no measurement program in place to monitor the success of educational programs or of textbooks.
Prior to the reforms of the 1990s, there was no mechanism to assess the quality of education. There are proposals for centralised exams which shift the focus from "screening" of pupils to guiding the learning process.

Conclusions

Research suggests that the existence of centralised examinations produces better outcomes in terms of learning achievements. In the Czech Republic, there are uniform examinations rewarded by certificates. In Poland, a central examination commission sets standards for testing. In Hungary, exams are subject to ministerial supervision. However, the information on the individual countries suggest

that the current mechanisms in place for the assessment of the quality of education are either inadequate, unproven or still being developed.

B.XI The Teaching Force and its Future Development

The transition of Central European countries from a command and control economy to a market economy is making former teaching skills obsolete and abruptly adding others. This raises the question whether pre-service training institutions are able to adapt flexibly enough to provide teaching for the required skill structure (World Bank 2000, p. 26).

A major problem is also posed by the need to provide adequate payment for teachers. In most countries, including those examined here, teachers were usually civil servants or public employees and thus cannot be hired or fired at short notice. There are indications that due to the excessive early specialisation of education, the teacher-pupil ratio is more favorable than in most other countries including the EU15 member states, and that the number of students is declining due to low birth rates. While this might suggest a very favorable situation conducive to learning, there is evidence that the average quality of teaching is poor, since teachers have been trained for extremely narrowly defined subjects, so that the system as a whole performs poorly. A smaller, better-trained teaching corps would probably produce better outcomes, illustrating the point that increased spending on education alone will not improve quality. A point worth mentioning in this context is that in-service training for a larger teaching force either costs more money, or with only limited resources available, will not be effective, particularly in gearing up extremely specialised teachers for the demands of current educational standards.

As the report on *Poland* points out clearly, teachers in some PACs have been poorly paid for some time now and are falling behind other professions in terms of increases in earnings. The teaching force is aging rapidly with many senior positions blocked, minimizing career opportunities for bright newcomers. This means in particular that teaching from the viewpoint of earning and career prospects lacks attractiveness for young people and that teachers offered alternative employment in industry with better prospects and earning will be sorely tempted to leave the teaching profession.

The financial situation of teachers most likely distracts the attentions of teacher associations, such as the trade unions, from the content and quality aspects of teaching to improving their financial situation and social status.

While an improvement of the social situation of teachers is undoubtedly important to attract qualified staff to the profession, other aspects of the situation also require attention, such as defining teachers' commitment in terms of numbers of classes and lessons, communication with students and their parents, participation in school management, syllabus development and in-service training.

As mentioned previously, another important issue is the retraining of the existing teaching force to meet the needs of newly-defined goals of the education systems of the PACs. The World Bank points out the danger that, due to their deep roots in the former system, many teachers will only insufficiently understand the changes required by the changed agenda for education and consequently structure their own activities in ways different to those intended by policy makers. In some cases this can be due to the failure of policy makers or higher-level management to resolve certain conflicts, e.g. revision of textbooks and examinations to match the new goals of education.

Czech Republic

In the *Czech Republic*, initial pre-service training of teachers takes place at the pedagogical facilities of the institutes of higher education, but there are also separate courses for management and languages. The school offices at district level can also organise and finance teacher education courses.

Hungary

The *Hungarian* Ministry of Education has little influence on teacher promotion or in-service training. It does, however, define standards for general teacher training and training for educational management.

The school principals are appointed and evaluated by the local governments as part of their responsibility for the schools. Evaluations are however rare in actual practice. They approve the pedagogical programs and local curricula, but mainly from the legal and financial angles.

The schools appoint teachers, but local governments determine the size of the teaching staff. The school staff must approve and adopt local organisational rules and the organisation of the school, which is drafted by the school head.

The central government is seeking mechanisms to influence local decisions by earmarking parts of the funding for education, e.g. in-service training, payment on merit principles. Coordination mechanisms are sometimes lacking, for instance a link between the number of compulsory lessons and their implications for teacher salaries. Local governments frequently fail to implement the recommendations of head teachers regarding merit pay for financial reasons. Local protests by teachers and student parents are preventing the closure of schools, which would be justified for rationalisation reasons.

The teaching force in Hungary is actually too large for the number of school age children, but local administrations are conflict-adverse and prefer splitting classes to dismissing teachers.

Since 1996, a new system for in-service training has been in place and developing rapidly.

Poland

In *Poland*, most teachers are protected against dismissal by their legal status. Earnings are low, as already indicated, but so is the compulsory teaching load.

Since 2000, there have been 5 distinct levels or ranks of teachers from trainee to professor of education, with the latter earning two and a half times as much as the former.

The teaching commitment is a minimum of 18 hours per week with a maximum 26 hours per week, with the difference paid as overtime. There are separate pay scales applying to special institutions and schools, rural areas or specialised subjects.

It is possible for the school principal to reward good teaching work with an increase of up to 20% on scale. However, the practice seems to be that principals tend to spread additional funds evenly rather than giving awards on merit. The evaluation of teachers tends to be rather formal, i.e. checking that they are giving the required number of lessons, covering the curriculum etc.

Teacher training takes place in centrally funded higher education institutions, either in specialised departments for subjects, such as French, or in departments of pedagogy. There is criticism of the academic orientation of most teacher training, which is on the subject itself, and not on how to teach it.

Since the higher education institutions are autonomous, these are free to set their own curriculum. There is also no possibility for decision-makers to influence the supply and demand for teachers of individual subjects.

There are also 3-year teacher training colleges operated under the patronage of the provincial superintendents. These are under the influence of the National Ministry of Education.

About 7 to 9 percent of the Polish teaching force are unqualified teachers, hired temporarily to teach subjects for which there is a shortage of qualified teachers, notably languages in rural areas.

Principals are selected from the ranks of the teachers on the basis of competitions. Depending on the type of school, the appointment is made by the district or the municipality, but in each case has to be approved by the superintendent.

Conclusions

The teaching forces largely "inherited" from the old command and control systems were usually too large, too specialised and trained in the "expert – novice" tradition with stress on rote knowledge. There are barriers to reducing teacher numbers, such as existing contracts or resistance from parents. There is a lack of qualified teachers for certain subjects, such as foreign languages or computer science. Teachers are generally poorly paid, making the profession unattractive to talented students. Systems of payment on merit are difficult to implement. An area deserving greater attention is in-service training, since inadequate training might achieve superficial agreement with the goals of reforms, but insufficient understanding of what is really required to implement the necessary changes.

B.XII Special arrangements concerning education for use of ICTs and by ICTs

The path into the so-called information or knowledge society is also associated with changes in the system of education, mainly in two directions: on the one hand, instruction on the use of ICTs (in the shape of knowledge and skills) and on the other, the application of ICTs throughout the entire educational system. On the one hand, this implies provision of technical equipment, and on the other hand, the development of an appropriate syllabus and the training of teachers.
The introduction and application of ICTs cannot be seen in isolation from the political, legal, economic and technical conditions and the infrastructures existing in the countries concerned, i.e. of the efforts being taken to "informatise" the individual countries in order to catch up with the level of developed countries in Central and Western Europe in this respect. The starting positions and the adopted measures appear very different in the countries examined, as the following information shows:
Percentage of population using the Internet (cf. Fobel/Fobelova p. 3f.; Filacek, Machleidt, p. 22)

Czech Republic	20
Poland	15
Slovak Republic	9
For comparison	
USA	58
Netherlands	46

In *Poland* 100 thousand computer units for about 6,750 thousand pupils. On average, that means 1 computer per 67 pupils. The statistics for France shows that there is one unit per 45 pupils in elementary schools and 30 pupils in secondary school.
Figures 1 and 2 show that the *Slovak Republic* is lagging behind technologically, (for instance with regard to the parameter availability of the Internet).

In order to considerable improve the situation, the following national concepts have been developed:

"Information Policy in Education" in the *Czech Republic*
"Program of Computerization of Schools" in *Poland*
"National Information Policy " in the *Slovak Republic*

These national concepts primarily set targets with respect to technical equipment and on the ways of reaching them, but do not deal with substantial matters, such as curricula or teachers.

Technical equipment

On the *Czech Republic* Machleidt and Filacek point out, that computers are used by 81% of pupils at elementary schools in the Czech Republic, by 100% of grammar school students, by 97,6% students at secondary vocational training centres, by 97,6% of students at secondary vocational schools, and by 93,1% of college students. As a result, the Czech Republic has evident untapped reserves at the elementary school level, with the international average standing at 84%. But in actual fact, the share of using computer technology in most advanced countries is nearing the 100% mark. As for secondary schools, the Czech Republic is slightly above international average. Another key indicator to characterise the level of computer technology equipment is the number of pupils per computer. Between 1998 and 2000 this particular indicator in the Czech Republic slumped from 63 to 34. The number of schools that can be connected to the Internet has been growing. (See also picture 3)

The description of the status in *Hungary* is given by Csàkò. A nation-wide governmental program was the only way to put teachers in touch or at least make them see a real computer. Returns are only beginning to come in the late nineties – and only in the form of visibly decreasing reluctance of teachers towards computer (and Internet) use in schools. To be sure: we shall never know how much of this change results out of reiterated national programs and how much results simply as a diffuse cross-effect of the presence of informatics in most parts of everyday life. It was a political decision to make an extremely large investment in this field and there is no way to assess its efficiency in economic terms. Appropriate and operational equipment is a condition only for quality teaching. The only real actor is the teacher him/herself. One can see quality teaching (i.e. realising an investment in human capital) with poor equipment as well as with expensive equipment. It is better to work with good equipment, but the quality of the result depends on the worker first – especially in education.

The Situation in *Poland* is described by Biczynski as follows: The Ministry's program for the computerization of schools is having good effect. A special financial reserve in the national budget was created to cover expenses for infrastructure. This reserve amounting to 102 777 000 PLN (circa 25 690 000Euro) allowed the Ministry to equip 2480 computer classrooms in 1998, 810 classrooms in 1999 and 2510 in 2000. Until the end of 2001, another 2361 classrooms will be equipped with 23107 computers. This means that 10 years after first Internet letter in Poland (17 August 1991 – from the Physics Department of Warsaw University to the University of Copenhagen) almost 125 thousand computers will be at the disposal of pupils from elementary and secondary schools. Not only the Ministry is supporting schools in getting computers. There are very advanced talks with the Polish Telecom about supplying schools with old Polish Telecom equipment, which is not older than 4 years.

Following Fobel and Fobelova for the situation in *Slovak Republic*, the most important project in the field "information technologies and education" is the INFOVEK-Project. A short description is given below. Here is only selected information on PC-use in schools:

1999 – 425; 2000 – 817; 2001 – 2.000; 2002-3 – 33.000

B.XIII Examples

The Slovak INFOVEK project

The non-governmental organisation Infovek was founded in January 1999, and his since become the main actor in the project of linking all elementary and secondary schools with the Internet. The intention was to involve Internet connections in the pedagogical process. In this way the schools are transforming into centres for the spread of the informatisation of society – from the schools and their students via the teachers to their parents.

The goal of the INFOVEK project is to prepare the young generation in the Slovak Republic for life in the information society of the 21st century. The project is attempting to prepare students for life in

the forthcoming society so that they will be competitive on the global market, particularly when compared with their contemporaries in the European Union. The space where this preparation is to take place is school. In order to fulfil this task, it must change from the "traditional school" into a modern school of the third millennium. This includes the appropriate technical equipment. The INFOVEK project has the aim of equipping each primary and secondary school with computers and internet access within five years. This requires not only the setting up of the hardware infrastructure, but also preparing teachers for work with ICTs in the teaching process. This also requires the development of suitable textbooks, teaching aids for teachers and the design of modern educational content in electronic form on web sites. The INFOVEK project is characterised by the integration of all three aspects mentioned.

The first phase of the INFOVEK project (in the year 1999) was initially marked by consequent specialist work and theoretical preparations by a small group of people from the INFOVEK association. Good preparation in the first phase made it possible for the coordinating committee of the project together with the INFOVEK project department of the UIPS (Slovak Institute for Information and Prognosis of Educational System) and the Ministry for Vocational Training of the Slovak Republic to be able to realise the first phase of the project within the short period of three months, still in the year 1999. Thanks to the support of the Committee of the National Council for Vocational Training, Science, Youth Affair and Sports, the deputies of the National Council approved a budget of 20 Mio. Sk in 1999 for the "informatisation" of primary and secondary schools. In this first phase of the project 79 schools were selected, among them schools without any technical equipment, schools with lessons taught in languages others than Slovakian and schools for physically handicapped children. In all, these schools received 371 modern computers, 61 servers, 94 modems, adequate cable networks and the fees for internet use.

In the year 2000, 80 million SKr. were set aside for the project. Due to the strength of the US currency (upward revaluation of the Dollar), which also had impact on the prices for computers on the Slovakian market, it was not possible – as originally intended – to equip all schools with the full technology. For this reason, the funds provided in 2001 will be used to complete equipping the schools concerned. In the year 2001 another 150 schools were involved in the INFOVEK project and another 50 schools selected as a "reserve", which will automatically participate in the project during 2002. Schools were and still are selected for support within INFOVEK on the grounds of a current proposal, with several criteria serving as the basis for selection – the realisation of a project for the use of the internet at school, schools for handicapped pupils, schools with other teaching languages than Slovakian, special course for Sinti and Roma children etc.

The third phase of the project began in the year 2001. Financial support of the state amounts to 210 million Sk. In addition, sponsors are being involved in the project. A total of about 220 schools are scheduled for support in 2001.

Among the other main tasks of INFOVEK are: the project educational server (http://www.infovek.sk), which contains not only current information from "inside the project", but also consecutively a database with interesting material for teachers, pupils and students of individual subjects; the design of the web site of the INFOVEK Summer school (http://www.infovek.sk/lskola/index.html), which serves as a template for concrete uses of ICTs in individual subjects, the continuation of discussion groups which serve the exchange of information and experience within the project among teachers and other interested parties (http://www.infovek.sk/diskusne.html). The design of a tele-project is also gradually being incorporated (for further information cf. http://www.infovek.sk/projekty/aktualne.html).

Sponsoring in the Slovak Republic

The opportunity to support the informatisation of the Slovak Republic through sponsoring is being taken up by several companies:

- A world famous firm has equipped a high school with computers. Successful cooperation has developed with Telenor, which has publicly declared its support.
- Within the INFOVEK project, there is sponsoring, which – as the next important step towards the informatisation of the Slovakian educational system – is intended to increase awareness of the importance of ICTs for the near future. As an example, one may mention Compaq Computer Slovakia GmbH, which in May 2001 handed to representatives of the INFOVEK project the Compaq Proliant ML 350 server, which enables the simulation of a virtual enterprise environment, which INFOVEK has developed under the name of "Investland". One assumes that this gift will improve the quality of entrepreneurial awareness.
- The Compaq Computer Slovakia company is at the same time both the initiator and main sponsor of the Slovakian school competition for the best web site of entire schools and the best thematic web site "The place in my neighborhood I would like to show all the world" of individual students. Compaq has interesting prizes for the winners of this competition - PC, Notebook, Pocket PC etc.Further prizes are being donated by the Telenor und Nextra companies.
- Together with Telenor Slovakia GmbH and Nextra GmbH companies and the INFOVEK project, Compaq Computer Slovakia GmbH has prepared the eleven-part TV series "Okná internetu" ("Window of the Internet"- www.oknainternetu.sk) both for young people and the broader public. This series is designed to broadcast information on new teaching possibilities via PC and the internet and for the distribution of information on possible uses of the internet. The series ran in STV from April 2001, and at the same time the best schools which have been using computers as part of their teaching for some time already were presented.

Information Policy in Education in the Czech Republic

A concept of the country's "Information Policy in Education" was drawn up in the Czech Republic in 1999, elaborating basic programs stemming from the state information policy for the school system at all levels. Until then the Czech Republic had no coherent concept of ICT development in education whatsoever, and - as a result - no binding objectives for furnishing schools at all levels by computer technology connected to the Internet and for integrating computer information networks in the classroom. At the same time, the Czech Government's Council for State Information Policy established as its consultative body what is known as the Czech Forum for the Information Society. Its ultimate purpose is to reflect the specialised and social aspects of the implementation of the state information policy. Part and parcel of this forum is the working group "Literacy for the 21st Century" whose tasks include the following issues:

- ICT utilisation in education and in support of educational activities;
- development of educational opportunities with a view to the need of promoting more intense ITC use in society coupled with the construction of a qualification structure, as required by the development of the information society;
- the danger of dividing the society into information literate and information illiterate groups.

One of the vital prerequisites of computer literacy that is likely to help the country in asserting itself in the realm of knowledge and information is the ability to classify and select information. This is associated with an ability to use new information and communication technologies, i.e. one of the key skills of university graduates on which the Czech educational system should concentrate. In this context, experts often speak of what they call information training; the changes in educational and teaching methods are so pronounced that one can go as far as to refer to ICT-caused changes in the paradigms of school instruction. Eventually, the ultimate goal should be a comprehensively conceived information training aimed at teaching students to process information, transforming it into broadly practicable knowledge.

For school leavers, the task of mastering ICT is an absolute must as well as a vital condition for their employment. Recent developments in the Czech Republic seem to be copying what has been happening elsewhere in the world, doing so with a certain delay. The document entitled "State Information Policy - A Path to the Information Society", approved by the Government of the Czech Republic back in 1999, charged the Ministry of Education, Youth and Physical Training - in conjunction with the Ministry of Culture - with the task of drafting a "Concept of State Information Policy in Education". This particular document emphasises the need of supporting new forms of education that are likely to contribute both to the development of the society as a whole, thus contributing to the Czech population's working flexibility. The document also mentions the goal of providing to all Czech students access to the Internet with the aim of involving them - to the greatest possible extent - in activities conducive to ICT integration into school work.

There is a distinctly prevailing view among the Czech teachers asserting that IT is of enormous importance for the development of their pupils and students. According to a research project studying teachers' attitudes, IT is believed to make it possible primarily to prepare pupils for their future professions, improve their study results, support their active approach to learning, adjust instruction to their individual needs, support their cooperative attitude to learning and project teaching, further promote their independence and responsibility for their own achievements at school, offer them an opportunity of practising their skills and facts taught, and - last but not least - make instruction more interesting.

Part C: Social systems[27]

This part on Social Systems shall describe some features of existing social protection systems in three Candidate Countries (Poland, Hungary and Romania), taking into account the existing economic, financial, social and demographic context in which such systems operate. The aim is to give an insight of how the social protection system operates and what the main mechanisms are. An indication of their efficiency, effectiveness, sustainability, adequacy of coverage and the economic incentives resulting from the systems is given.
In general the social protection system comprises: Health care, Sickness, Maternity, Invalidity, Old-age, Survivors, Employment injuries and occupational diseases, Family benefits, Unemployment, Minimum resources/social assistance, Long-term care, Disability.

CEE countries are allocating between one-sixth and one-fourth of their GDP to social policies and it has been found that the first-round Candidate Countries spend more on social policies than the countries belonging to the second group.[28] It is suggested that particularly under conditions of rapid structural change, redistribution efforts tend to cover unemployment benefits and targeted social programs. As argued by the EU Commission, this does not imply that the (relatively large) social welfare systems of the Candidate Countries are particularly successful in reducing income inequalities.

The key pressures on the social systems might come mainly from the labor market conditions, e.g. large flows from employment and unemployment to inactivity[29]. In this respect the EU faces the problem that social expenditure needs to be increased. With regard to the significantly lower wage levels in Candidate Countries the major challenge will be to promote the establishment of an effective legal and institutional system that combats social dumping.

C.1 Pension Systems

In Candidate Countries, pensions have had been borne by the State and were perceived as a right that the state accorded each citizen without it being connected to a charge.[30] The transition to a pension system which relates the contributions paid to the system to the benefits to be received during retirement has created economic and financial, as well as systemic problems. Three « pillars » of a retirement system (World Bank terminology) can be distinguished: The first pillar corresponds to retirement paid to all and constitutes a minimum, and could be seen as the minimum revenue, the social net to be financed evenually by state subsidies.
The second pillar consists of a payment system related to the relative amount of contributions paid during professional life.
The third pillar includes voluntary investment into pension funds.
The decision upon the application of one or the other pillar, or the application of a combination of the three has been an important political question for the Candidate Countries.

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[27] Part C was produced by VDI-ZTC Future Technologies Consulting, Düsseldorf.
[28] http://www.eu-kommission.de/pdf/erweiterung/AnalysisB.pdf

[29] Boeri, Burda and Köllö (1997) decompose the decline in employment rates into the shares associated with i) the growth of unemployment, ii) the increase of inactivity, and iii) the decline in demographic pressures. They find that the strongest employment declines occurred in the countries with the largest falls in inactivity.

[30] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf

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Developments in pension finances have hence been remarkably diverse: Poland, for instance, has a particularly high number of non-retirement pensioners, Romania has very low replacement rates (similar to most countries of the OECD)[31], and in Hungary and Poland the replacement rates are close to those of Germany, France and Italy. [32]

Hungary initiated liberal reforms of the pension system in 1996 and adopted the relevant legislation in July 1997. In January 1998, Hungary became the first transition country to begin implementing a 3-pillar pension system. The motivations, aims and specific principles of the Hungarian reform [33] are similar to those which Poland adopted one year later, [34] and even Romanian government has prosposed a reform of the state pension system along the Hungarian-Polish model [35].

In both Hungary and Poland there was a need to diversify the institutional architecture. By complementing compulsory with voluntary contributions on the one hand, and state social security system with private pension funds on the other hand, a lower obligatory social security contribution should be achieved, in order to reduce labor costs and increase employment. In both countries, the aggregate levels of public expenditure on pensions (as proportion of the GDP) had to be decreased in order to reduce the tota! 'axation burden and the budget deficit. This resulted in a drastic modification of the redistributive character of the previous system.

The reform applies only to retirement pensions, even though these pensions accounted (in late 1990s), for some 80% of all pensions expenditures in Hungary, as against 55% in Poland. Hence, much of the pension problem still remains to be solved, particularly concerning the pensions for the agricultural community.

C.2 Unemployment Compensation

Insurance programs[36] and assistance programs[37] can be regulated by unemployment compensation schemes. Their amount does not depend on the salary but is a fixed service possibly related to the socio-economic situation. Most of the EU15 countries combine the two systems. Apart from Estonia, all Candidate Countries have implemented insurance regimes which employ social charges and an „assistance system". [38] The participation of social partners in the management of the unemployment compensation system varies within the Candidate Countries. Some have adopted the principle of „tripartite management" with participation form employer and employee organisations, while in others the implication of employee or employer unions is much more formal, or even do not exist at all. [39]

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[31] Chand, S. K., and Jaeger, A. (1996), 'Aging Populations and Public Pension Schemes', IMF, Washington D.C., Occasional Paper No.147.

[32] Stanislaw Gomulka, Pension Problems and Reforms in the Czech Republic, Hungary, Poland and Romania, November 2000, http://cep.lse.ac.uk/papers/discussion/download/dp0480.pdf.

[33] Palacios, R. and Rocha, R. (1997), 'The Hungarian Pension System in Transition', mimeo, World Bank, Budapest.

[34] Gomulka, S. and Styczen, M. (1999), 'Estimating the Impact of the 1999 Pension Reform in Poland, 2000-2050', CASE, WP. No. June.

[35] De Menil, G., Hamayon, S. and Seitan, M. (1999), 'Romania's Pension System: The Weight of the Past', CASE, WP. No.177, Warsaw.

[36] e.g. benefits paid to those that have contributed for a several years to the system. The amount is related to the amount of the wages of the employee that lost his job.

[37] e.g. benefits paid by the State, without any contribution from the concerned party.

[38] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf.

[39] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf.

C.3 Health Care

In all European countries health care is a matter of public policy. The European Commission has already initiated a number of public health measures and services, but national health insurance schemes still operate according to their own rules (Maastricht Treaty). "Social security", in EU terms, includes national health insurances and national health services which can be regulated on EU level only by unanimous decision (which becomes increasingly difficult in a Community with 15, and soon even more members.) [40]

Health and poverty are interlinked and many applicant countries are still struggling with the consequences of social, economic and democratic change, social exclusion, the rising numbers of elderly people, and the increase in communicable diseases.

The 1990s have been marked by a profound transformation in health care systems in the Candidate Countries, and the „free-of-charge services" have turned into medical insurance system allowing patients to be reimbursed for their medical expenses (with the exception of a part, representing a personal contribution toward the expense).[41] Nevertheless it has often been argued that most of the health systems in the Candidate Countries are „still a mess", with a culture of informal payments to doctors according to the principle "Bribe the doctor and you get what you want".[42] There is a risk of an exodus of poorly paid doctors and nurses taking up jobs in the present EU15 with better salaries, working conditions and career prospects which might have serious implications for healthcare in the new Member States. [43]

So far there had been little evidence that changing the sources of financing for the health sector had had any direct impact on either health or the quality of services.

However, it is argued that, on the other hand, health was never on the priority list of the Commission for the Candidate Countries (and PHARE funding in the health sector had decreased substantially in recent years, even though the need for it was evident).[44] This could have serious implications in connection with the acquis communautaire.

C.4 Consumer Protection

The development of a consumer protection system focussing on food, financial services, public utilities and consumer education is still difficult in some applicant states. Particularly the veterinary and phytosanitary safety are at relatively low level in the Candidate Countries as compared to EU standards. A substantial effort would be required on the part of the Candidate Countries in order to comply with EU rules. Feed and food processing establishments need to be improved and restructured to take account of the EU acquis on animal welfare. With regard to consumer protection, Hungary seems to be the most advanced accession country, followed by Slovenia and Estonia, and Poland. [45]

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[40] http://www.ehfg.org/website98/englisch/9.htm.

[41] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf

[42] Dr Elias MOSSIALOS of the London School of Economics at the OECD conference 23-26 April 2001, http://www.oecdconference.org/material.htm.

[43] Belabed, Eva, 2000, http://www.health.fgov.be/WHI3/krant/krantarch2000/kranttekstjuly/000725m10eu.htm

[44] Belabed, Eva, 2000, Social Impact of the Enlargement http://www.ces.eu.int/pages/en/acs/events/16_11/Doc_Belabed_161100_en.PDF

[45] Belabed, Eva, 2000, http://www.health.fgov.be/WHI3/krant/krantarch2000/kranttekstjuly/000725m10eu.htm

C.5 Migration

The EU's "Employment in Europe 2001" report noted that the 15-nation EU created three million new jobs in 2000, raising the employment rate to 63 percent; unemployment fell to 8.2 percent. The EU's employment goal is to have 70 percent of working-age adults employed by 2010.[46]
In the EU15 member states fertility is below replacement levels which indicates that, without immigration, EU populations and labor forces would shrink. [47] With estimated 500,000 legal immigrants per year (including returning citizens, family members of settled foreigners, guest workers, and asylum applicants) and the same number of unauthorized foreigners, the immigration policy aspect of the enlargement process tends to produce strong political opposition within the EU15. [48] It has been estimated that, after the expected accession in 2004, about 335,000 workers from 12 Eastern European countries (excluding Turkey) would towards the EU15 (80 percent of the migrants moving to Austria and Germany) [49] and that the number of migrants would shrink to 160,000 a year only by 2010.

C.6 Gender Policies

In the Candidate Countries women have had usually a high degree of education and training and were well integrated in the labor market (partly because there were comprehensive childcare facilities). They had an important share of parliamentary representation since female candidates for parliamentary seats were encouraged by the governments.
After the restructuring process their position has however, become vulnerable in the sense that this process increased the pressures on childcare facilities and induced a rise of the costs for childcare. Maybe as a response to this development, and since part-time work doesn't seem to be an attractive component of the labor market in Candidate Countries, some states, such as Romania, have increased the period of maternity leave.[50] Only the service sectors - with a large proportion of women employed - was less affected by the transition process (which resulted in lower unemployment rates).[51]

C.7 Social Relations

A fundamental element of socio-economic participation in the countries of the EU15 are trade unions. Even though their role differs from country to country, the existence of a balance of power between employers and employees associations is a fundamental principle of the European social model. Prior to the transition process, trade unions in Candidate Countries have had no role as an „opposition" but rather as an element of the state power (except for few exceptions, of which the

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[46] (http://europa.eu.int/comm/dgs/employment_social/key_en.htm).
[47] http://migration.ucdavis.edu/mn/entireissues/sep_2001mn.html.
[48] http://www.un.org/esa/agenda21/natlinfo/countr/hungary/social.htm.
[49] Austria and Germany insisted that the EU prevent the citizens of newly entered Eastern European nations from migrating for at least two years (2005-06). After this two-year wait, the current 15 EU members could individually prevent freedom of movement for another three years (2007-09), and then a further two years, for a maximum seven-year wait (2010-11). Most Eastern European countries seem willing to accept this 2-3-2 plan for freedom of movement.
[50] Brigitte Marcher, GENDER-ORIENTATION OF THE EU-ENLARGEMENT POLICY http://www.renner-institut.at/texte/eugender.pdf.
[51] Declaration on the future of Europe; In: European Parliament, Report on the Treaty of Nice and the future of the European Union; Session Document, 4 May 2001.

most famous and spectacular is the example of Solidarnosc in Poland) and employers associations did simply not exist.[52]
However, due to transition process, the Candidate Countries have been approaching the potential role trade unions and employer organisations. While some Candidate Countries still „dispose" of only one unified union, in Romania, many trade unions have emerged, and in Hungary, six trade unions and nine employer organisations came up. Often they receive important support from their west European counterparts. During a conference held in Warsaw in March 1999 entitled « Social dialogue for success: the role of the Social Partners in EU enlargement », representatives of trade unions, employer organisations and governments discussed their future role in the frame of the enlargement of the Union European.

C.8 Country studies

C.8.1 Hungary

A new law on Safety and Health which encompasses the main preparatory actions of EU orders was passed by the Hungarian parliament in 1993. Despite this, the establishment of successful legislation in relation to occupational safety has been impaired by workers which are insufficiently qualified, receiving low wages and have low morale. Some groups have declined to the poverty line which the government has done little to prevent. Over 20% of Hungary's population live below the poverty line. Social change has had particularly negative effects on pensioners and single mothers.
The right for many of the population to claim social security benefits has been restrained as a result of contributory social insurance funds. Grave problems have emerged from the administrative handling of these funds, the poor organisation and corruption as well as insufficient supervision. Conforming to basic community laws, migrant workers and their families can also receive social security and private pension funds.
Safety practices are not being put in place even in companies which have up to date technologies. Companies perceive that by ignoring these safety practices, they can cut their costs. As a result EU standards for occupational safety are far from being met.
Due to the scarcity of finances Hungary's education system is also suffering despite its history of having high standards in education. In comparison to the EU, the costs of partaking in higher education are quite low. However rates for primary and secondary education are high.
The EU regulations on the free movement of citizens should be implemented quiet easily since legislation in Hungary does not allow discrimination between legal foreigners and national citizens. Hungarian legislation covers the main actions dealing with equal opportunities for men and women. It is likely that Hungary will be in engaged as an EU member in the social area in the medium term. This is however only possible if Hungary continues to adopt and apply the EU regulations.
Striking a balance between economic chances and safeguarding its social protection, is a main aim for Hungary. Pension reforms which have already been implemented are currently being amended. In addition to this reforms are in preparation to include invalidity and disability benefits, family support, social assistance and care services. Changes to the legislation regarding child support and the legislation on social administration and assistance has lead to better conditions for elderly care and child care support. Access to public buildings and working conditions were the main focus of an action plan which was implemented at the start of 2000. This action plan developed as a result of a national program for disabled citizens which was adopted in December 1999. Core activities within this action were the establishment of sufficient living places, the setting up of a pilot-program and the establishment of rehabilitative working groups within the centres of work. The inclusion of disabled persons in companies is also an important aim of the program. This is achieved by making

[52] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf.

sure that any company which has a work force of over 20 people, holds 5% of its positions for people with disabilities. People with physical disabilities should have easy access to public buildings. Improving this situation is another goal of the program. The Council on Disability Matters organises the way in which the program is put into practice. The government should be kept up to date on the living conditions of the disabled. This is another task of the Council on Disability Matters as well as giving advice on the legal framework and the co-ordination of activities which are related to the target group.[53]

Overall there were good advancements with regard to the legal interchange. Yet in some cases implementation does occur until a later stage or even not until the time of accession. As a result, this implementation and enforcement could be difficult to study. In comparison to the health indicators of the EU, those of Hungary are quite weak. Legislation orders on health and safety as well as labor will need to be given extra consideration with regard to their implementation and enforcement. Attention will need to be paid to the enforcement and implementation. The rules and regulations of health and safety need to be developed much further despite the positive progress that has been made in the work interchange since 2000. Before Hungary's accession most directives will be gradually put in place. In December 1999 the personal protective equipment directive was altered yet it will slowly be put into action in advance of accession. This is just one example. Another example is the alterations made to the directive on carcinogens in September 2000. These will also be put in place in advance of accession. In the area of health and safety close observation of the degree of steady implementation for all directives is necessary.
Concerning the directive on equality of treatment, there needs to be further efforts to bring Hungary into line. A problem which needs to be dealt with is the lack of proper dialogue in society which at present does not exist. An influential dialogue in society should be made possible through correct use of the new structures. In Hungary effective outcomes of social dialogue should be advanced vigorously. Social dialogue suffers when there is insufficient communication at the national level. This has negative effects not only at the European level but also at the decentralised level (sectors, regions and enterprises). Independent social dialogue at all levels must be increased by Hungary.
European Employment Strategy is being put in place as a result of Hungary changing its employment system and altering its labor market. Despite the positive progress which has been made by Hungary, greater incentives to encourage people to work by reviewing the tax and benefit systems, the need to improve the low employment rate, in particular for women and older workers and the need to reduce the size of the informal sector are still major challenges which must be addressed. Future participation in ESF should continuously be planned. The basics which were agreed by the member states in the EU with regard to a united sustainable social protection are also pledged by Hungary. The improvement of the level and effectiveness of social protection is the main goal which is stressed. Amendments to health care which have been discussed for quite a while appear to have made little advancement as yet. There must be an introduction and operation of the legislation altering the EC Directive based on Art. 13 of the Treaty which relates to discrimination on the grounds of race or ethnic origin.[54]

C.8.2 Poland

The largest country seeking accession is Poland with a population of 38.6 million people. 1.3% of the population belong to a minority group. The Polish government in collaboration with employers' and employees' organisations created a social dialogue which is based on the legal framework agreed

[53] Regular Report From The Commission On Hungary's Progress Towards Accession, 8 November 2000, http://www.meh.hu/nekh/Angol/2000regularreport.htm#_Toc498182301.
[54] Regular Report From The Commission On Hungary's Progress Towards Accession, 8 November 2000, http://www.meh.hu/nekh/Angol/2000regularreport.htm#_Toc498182301.

in 1991. Responsibility is shared between the social partners and the government but how exactly responsibility is divided is not clear. Negotiations divided among the three parties is the common procedure. In general the social dialogue needs to be improved but there is a particular need to improve dialogue between employer and trade union organisations. Public companies which have not been privatised are acting as representatives for employees. It is seldom that legitimate private collective negotiations occur. Polish labor legislation still has many flaws. Where social affairs are concerned there has been an increase in efforts to conform to EU regulations. [55]

In a time of financial restrictions and the difficult situation that brings, including the problem of altering the indexation of pensions, new social security schemes are being implemented. Financial, management and efficiency problems are still of great concern for the National Social Insurance Institution although reforms have been implemented to curb the problem.
Hospital security, hygiene standards, management, wage rates and funding are the main challenges the health care system are faced with. In January 1998 however a new reform was implemented. There has been improvement in the life expectancy rates in Poland but they are still under the EU average. Education has advanced significantly in Poland in recent years. The work force is highly skilled. At the least secondary education has been pursued by 65% of those working and more than one third of the entire population. For areas which could likely suffer from economic transition it is of special importance to pay attention to the supply of suitable vocational skills in the medium term. There should be no problems in this area from an accession perspective.

There needs to be further advances made with regard to the freedom of movement of persons in order to conform to EU legislation. Concerning access to employment and freedom from discrimination on grounds of nationality the national law must be modified so as to allow for the establishment of the right to free movement. There are many difficulties implementing the basic principles of equal opportunities for men and women although they are apparent in Polish law. [56]

C.8.3 Romania

For people living on an inadequate income, the social situation in Romania is of huge concern. The exposure to poverty is a real threat to those who are unemployed or pensioners as well as for farmers and others who are self-employed which comes as a result of economic crisis, and the lack of effort from government to establish an efficient economic and social reform.
The health insurance system needs to be improved by the implementation of new legislation. Whether these modifications will rectify flaws in the entire health system is too early to judge at this point. In relation to EU standards, expenditure on health in Poland has been very low at only approximately 3% of GDP. [57]
Low income families with many children receive family benefits. The state budget provides the funds for these benefits. In recent years there has been an improvement in the family benefit system.

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[55] European Commission, Commission opinion on Poland's Application for Membership of the European Union, COM(97)2007 final, Brussels, 15.7.97. European Commission regular report from the Commission on progress towards Accession, Poland
(http://europa.eu.int/comm/dg1a/enlarge/report_11_98_en/poland/b35.htm.).
[56] European Commission, Commission opinion on Poland's Application for Membership of the European Union, COM(97)2007 final, Brussels, 15.7.97. European Commission regular report from the Commission on progress towards Accession, Poland
(http://europa.eu.int/comm/dg1a/enlarge/report_11_98_en/poland/b35.htm.).
[57] Racaceanu, Nicolina, The system of social protection in Romania, in: South East Europe Review for Labour and Social Affairs, Vol. 1, No. 3, Sept. 1998, p. 65.

Reforms in the area of education have included altering the structure (decentralisation), curricula, and how teachers are trained. This resulted in a quantitative and qualitative improvement.
Concerning collective bargaining, the trade unions play an insufficient role. However, on a national level the social dialogue between government, trade unions and employers' organisations will be institutionalised by the Economic and Social Council. [58]

Problems in gathering contributions leave the pension system in serious financial difficulty. There is a need for the government to subsidise the social insurance system in order to cover deficits. As mentioned earlier, the risk of pensioners being exposed to poverty is high. This occurs as a result of varying indexes on pensions, sudden decreases in purchasing power of pensions and low pensions for farmers. In the last five years amendments to the pension system have been continuously deferred. The parliaments are expected to take up a draft on pensions and social insurance law.

C.9 Outlook

It has been argued that enlargement will bring job losses and will lower the social standards because of competition from low wage countries with weak social safety nets. The main weaknesses to be imported from Candidate Countries have been identified to be low incomes (especially in agriculture), the out-migration of young people to urban areas and resulting in an old (aging) rural population, the "poor" infrastructures (information and communication facilities, but also physical infrastructures, like roads), the low education level, the high unemployment rate (particularly in rural areas) and the missing investment capital for start-ups. In addition, a series of other factors were identified, such as problematic access to services and inputs; low quality of products; low productivity and yields; and poor skills.

It has, however, also been argued that developing trade and investment in the EU15 and the Candidate Countries will open new markets for goods and services. Trade, as well as new technology, will reshape working life. Social policy is an important factor in such economic progress. Full implementation of social policies based on democratic values and norms would meet the whole of the acquis, which must include the body of existing social, employment and health and safety policies, and the agreements and commitments to ensure the modernisation of the European social model. Investment in social protection can become a productive factor in itself since high social standards will increase the populations' political support for the enlargement. It will give citizens of Candidate Countries tangible evidence of the benefits of EU membership. Effective social protection offers citizens the security and confidence to embrace a European future of growth and jobs, built on new technologies, applied in flexible and creative ways. [59]
The Commission should ensure that an externally oriented discourse on social policy is produced, as had been planned in the 1998 – 2000 Social Action Program, and that measures are foreseen to transpose priorities set out in the discourse to program level. [60]
EU country programs setting out assistance policies to third parties should specifically indicate how the assistance will contribute to social development. Indicators could be developed in order to measure the results of assistance given to social sectors.

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[58] European Commission, Regular Report from the Commission on Progress towards Accession, Romania (http://europa.eu.int/comm/dg1a/enlarge/report_11_98_en/romania/b35.htm).

[59] http://europa.eu.int/comm/dgs/employment_social/speeches/981214al.htm

[60] http://europa.eu.int/comm/governance/areas/group12/contribution_socialprotection_en.pdf

Adequate staff and expertise must be made available in the social sectors for the implementation of external assistance programs. The implementation of the acquis needs to reflect and incorporate the objectives of a social Europe and social policies must be integrated into the definition and implementation of Community policy objectives and activities. [61]

Since 1997, the process of integrating the Candidate Countries into the EU is driven by their obligation to meet the "acquis" which omits important complementary social dimensions to enlargement. The however differentiated social policy systems within the EU15 display nevertheless harmonised democratic values. «Our social structures are (..) based on shared values of equality and are distinguished by their universal nature and by the extent of their social support systems... European social standards are higher and stronger than those of all other comparable economies,...social transfers in EU member states help us to prevent poverty,...social policy is a productive factor that brings benefits for the economy, for employment, and for competitiveness.» [62]
As a result of certain socio-economic and demographic trends and the resulting increase in unemployment in the EU, social policy has become a prominent issue on the EU political agenda. The Council of Labor and Social Affairs decided in late 1999 to set up a high-level working group on sustainable pension systems, health care, and social inclusion [63] - however, finally it is under the auspices of the national policy making, to decide upon the social protection topography of a country.[64]
The Candidate Countries must hence, be encouraged to invest in their national social protection systems; to assure solidarity-based system; and to ensure participation of the social partners. [65] The European Union as the strongest player will have to support the "neighborhood's" transition into strong democratic market economies[66] while the role of political will must not be underestimated.

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[61] European Commission, Commission opinion on Poland's Application for Membership of the European Union, COM(97)2007 final, Brussels, 15.7.97. European Commission regular report from the Commission on progress towards Accession, Poland (http://europa.eu.int/comm/dg1a/enlarge/report_11_98_en/poland/b35.htm.).
[62] QUINTIN, O. Presentation at meeting of PHARE coordinators from the ten Candidate Countries. The Development of European Employment and Social Policy, DGV, European Commission, 2 March 1999.
[63] Council of Labour and Social Affairs, Conclusions, November 29th 1999.
[64] Mirjam Van Reisen, External Social Policy, Http://www.Socialwatch.Org/2000/Eng/Thematicreports/Inconsistency_eng.pdf.
[65] LARSSON, A. Speech at Consensus Programme Advisory Board (PAB) Meeting, December 14,1998, p. 4.
[66] http://www.jrc.es/pages/iptsreport/vol38/english/FUT5E386.htm.

Part D: Demographic Change in EU-Pre-accession Countries : The Challenges of an Enlarged EU[67]

The global population of PAC12, that peaked at 107 million in 1990, will represent a declining equivalent share of EU15: 28 % in 2000, 25 % in 2050, or 16 % of the population of EU28, with 85 millions in 523 million. Besides Turkey, only Cyprus and Malta remain on an upward trend. Turkey alone, with a population that in 2000 is equivalent to 18 % of EU15, would be close to 99 million, i.e. 30 % of EU15, or 19 % of EU28.

The working age population (15-64) of PAC12 shows a marginal increase (+ 2 % between 2000 and 2005), followed by a phase of stability and then a progressive decline after 2010, that would bring it back to 90 % of its 2000 level by 2025, i.e. a loss of 8 million compared to the current level. Even Cyprus and Malta should peak around in the second decade of the century. The working age population of Turkey will increase by 16 million people between now and 2025.

The demographic limitations on the working age population imply that a moderate growth in employment would easily bring the employment rates close to their plausible maximum levels, i.e. around 75-77 %. Starting from higher employment rates, the Czech Republic, Slovenia, Romania and Estonia could afford a 1 % p.a. growth in overall employment for less than 15 years. Romania and Bulgaria, that have moreover to face important sectoral shifts in the labor distribution, could afford such a growth for less than 20 years. Only Poland, the Slovak Republic, Cyprus, and certainly Turkey, could afford such a growth for over two decades. Within these boundaries, the improvement in economic efficiency should rely on shifts in the sectoral allocation of the labor force and on improved organisational forms.

The outcome in 2025 of the global aging process in PAC12 is similar to what it is in EU15, although it starts, in PAC12, only in the second decade of the century: the number of people aged 65+ will increase by just over 40 % over the next 25 years in both cases. But the "old age dependency rate" (65+ as % of 15-64 age group) will remain slightly lower: 30 % in 2025 in PAC12, compared to 35 % in EU15. But the progression of this dependency rate in PAC12 will be abrupt after 2010, requiring adequate anticipation. This is not a concern for Turkey, with a dependency rate that will lie at only 14 % in 2025. It should also be noted that most of the difference in the global aging calendar derives, for PAC10 compared to EU15, from the stagnant male life expectancy and the lower progression of female life expectancy.

The most striking evolution ahead, when considering the prospects of the labor supply, is the dramatic decrease in the number of young people joining the labor market: a reduction of 40 % in the age group 15-24 in PAC12 between now and 2020, compared with a reduction of 10 % in EU15. This collapse is common to all PAC10. Malta would show a decrease limited to 20 %, and Cyprus shows an evolution that is close to the EU15 average. Even Turkey shows here a relative stability, which is a the sign of a maturing demography. This overall collapse, in PAC12, is certainly the most far reaching issue, both in terms of labor supply and in terms of intergenerational behaviors. The replacement of aging workers by young workers will cease to be guaranteed:
a) before 2010, as in EU15, in the Czech Republic, Slovenia, Hungary, Bulgaria, Latvia and also in Malta; b) soon after 2010 in Poland, Estonia, Romania, Slovakia and Lithuania; c) around 2020 in

[67] Part D was written by Gery Coomans, Institut de Sciences Mathematiques et Economiques Appliquees (ISMEA).

Cyprus. It implies that PAC12 should avoid to support any early retirement scheme, that proves difficult to reverse, as is becoming the case in EU15.

The decrease in the number of young people is obviously related, certainly for PAC10, to the fertility collapse that occurred in the most abrupt manner over the last decade. All PAC10 began shifting away from their traditional pattern of early female marriage and early birth, i.e. around the age of 22-23, to come closer to the traditional west European pattern, with the critical age now around 24, compared with 27-28 in EU15. For the PAC10, this is opening, a window for longer education, along with a longer period of staying at the parental home. In this respect, most young people now behave according to a pattern that is closer to the Mediterranean "prolonged family" than to the "early leave" that is predominant in the Nordic countries. The danger in this heavier burden on households is that, as in the Mediterranean model, it contributes to keep the fertility rates well below the replacement level in the long term, unless a set of family supporting policies, that are uneasy to define, helps to share the burden.

Qualitatively, the educational attainments of the working age population, in PAC12, do not compare unfavorably with EU15 averages. With the usual division into Low (less than Upper secondary), Medium (Upper secondary) and High (Tertiary), for the 25-64 age group, EU15 shows a distribution of 21 High, 42 Medium and 36 Low. The PAC12 show a distribution of 13 High – with much less short tertiary and more long tertiary - 64 Medium and only 23 Low – that is similar to the Austrian pattern. Considering the employment rates per educational level, the frame is mostly similar in PACs to what it is in EU15: higher educational attainments mean better access to jobs and lower unemployment rates. If we take in account the progression of educational levels in the younger generations, then we find that the average distribution in the age group 25-64 will improve significantly over the next decade, not less in the PAC12 than it is the case in EU15: + 8 % and + 16 % for people with High Level, respectively; +16 % and + 17 % for people with Medium level, and also –36% and –19% for people with Low level. The very high share of Medium, that corresponds homogeneously to a study cycle attained around the age of 19, constitute a favourable basis for the expansion of the tertiary level.

The narrowing of the gap between men and women is also apparent in PAC12, as is the case for EU15, which is due in all cases to the youngest generations. While a certain number of EU Member States are still lagging behind, all the PAC10 show at least gender parity, and in many cases a female advance that is questioning the lower male performance. In all cases, the detailed evolution per age and gender, including the time spent studying, are not fuelling the argument of any lower qualitative level of human resource compared to EU15, and this raises the question of lower efficiency back to the different levels in organisational achievement.

With improving educational levels, which imply better employability, the demographic limitations will be partly compensated. While the labor supply in EU15 is now close to demographic neutrality, the educational shift would ensure by itself some further growth in the labor supply (+2 % of the labor force over 2000-2010). Over the same period, the educational shift in PAC10 (+1.2 %) would compensate most of the downward demographic shift (1.8%). The overall effect on the labor force would be significantly negative in Bulgaria, Estonia and Latvia (between –4 and –5 % over the decade), moderately negative in the Czech Republic and Slovenia, moderately positive in Hungary, Poland, Romania, and significantly positive in the Slovak Republic and Cyprus (+5-6 %), not to mention the much higher positive values for Turkey.

The main policy implications for the labor market policies can be ranked from 1 to 5.

1°) Considering both the dramatic decrease in the number of young incoming people and the educational upward shift, particularly in the PAC10 but also in Cyprus and Malta, little can be argued in favor of strategic choices that would take for granted a large labor supply for low wage/low skill activities. When considering the extent of the economic restructuring that lies ahead in Bulgaria or Romania, such strategic choices might be needed on a strictly transitional basis. But within a horizon of time of two decades, even these two countries would have to shift towards high added-value activities to support economic growth. The transitional period would certainly be longer for Turkey.

2°) Expanding the labor supply will require that family support policies be given a high priority. The question is henceforward to help the most qualified half of the potential labor supply, i.e. the female half, to participate in the labor market on a larger basis at the same time as being given good conditions for family forming. On the side of the labor market, it means that equal opportunities must become a main concern, and on the side of family forming it means that there is a need for a fair share in bearing the risks and the costs between private households and public funding.

3°) Opening the doors wider for the fast decreasing number of young incoming people in PAC12, will become automatically a common concern. But a trade off needs organising between the easier access to jobs and improved educational requirements. It is striking that the tertiary educational system, in all cases but Lithuania and Cyprus, still favors the "long tertiary", with a narrow supply in short tertiary education. The diversification of short tertiary courses, between some months and two years, is certainly a first rank priority. Dual educational systems, mixing work and training in and out of the working environment, are known to produce more adaptable qualifications. The short tertiary education could also do much to extend computer literacy.

4°) A high level priority should be given to the question of aging at work. Considering the further economic restructuring, there is a high risk that unemployment would shift progressively to aging workers, whose number is increasing fastest. Their dismissal means losing their experience and burdening public finance. Early retirement schemes are now proving costly in the west, and uneasy to reverse when the question of shrinking labor supply arises. Therefore, it appears urgent in all PAC12 to launch the debate, improve the awareness on good practices towards aging workers, in terms of no discrimination, adapting jobs, re-skilling and age-friendly behaviors.

5°) The choice consisting in letting people emigrate when facing a shrinking labor force, and an even faster shrinking young labor force, must be carefully investigated. From the point of view of the PAC10, any agreement to freeze the emigration flows at low levels might reveal a low cost concession at a time horizon of hardly one decade. On the other hand, importing capital that would favour higher internal employment and efficiency would give a higher return on the medium and long term.

D.1 Global population prospects

D.1.1 Past trends and projections

The population of the Pre-accession countries has been growing faster than the EU15 average until the mid-1980s. Considering the PAC-12, the population reached a peak around 1990, and returned to below its 1985 level by the year 2000. Figure 13 shows that only Cyprus (Island) and Malta are still on a steady upward trend, while Bulgaria and Hungary had lost over the last two decades over half of the progression that they gained since 1950. Poland and Slovakia have ceased their sustained growth (over 1 % p.a. between 1950 and 1990) in the last decade. Turkey, which has more than tripled its population over the last half century, has obviously been lagging behind in the so called

demographic transition, with both mortality and fertility levels remaining at high levels. The 3 million nationals from Turkey that are expatriated in EU15 in 2000 make only 6.5 % of the population increase in Turkey itself over the last 50 years.

Abbreviations :
PAC-10 = BG, CZ, EE, HU, LV, LT, PL, RO, SI, SK
PAC-12 = PAC 10 + CY + MT
PAC-13 = PAC 12 + TR
(PAC 11-lfs = PAC 10 + CY = Eleven countries covered by the Labor Force Survey 2000)

BG Bulgaria	CY Cyprus	CZ Czech Rep.
EE Estonia	HU Hungary	LV Latvia
LT Lithuania	MT Malta	PL Poland
RO Romania	SI Slovenia	SK Slovakia
TR Turkey		

Figure 14 shows that according to the latest UNO projections the population of the PAC-12, considered as a share of the EU-15 population, will steadily decline: from 26 % in 1950 to a peak close to 30 % in the mid-80s, down to 28 % in 2000 and to 25 % in 2050. It is worth noting that the different projection scenarios hardly change the decimals in this last share. As for Turkey, its population represents an ever increasing equivalent share of the EU15 population: starting from 7 % in 1950, it reached the level of 18 % in 2000, and it is likely to lie somewhere between 25 and 34 % in 2050 – just below 30 % in the medium variant projection. Turkey would then be a country with a population between 80 and 120 million people, very close to 100 million in the medium variant projection.

In the coming quarter of a century, no single country from PAC-10 shows any progression in its overall population, as illustrated by Figure 15. Only Poland, Slovakia and the Czech Republic decline by less than 5 %. The decrease would be close to 10 % in Hungary, Romania, Slovenia and in the two southern Baltic States, Lithuania and Latvia. In Estonia, it is projected to be close to one quarter. The two Mediterranean islands show residual increases, with Malta coming close to its peak by then, 7 % above its 2000 level. Turkey would go on increasing by more than 1 % p.a. over the next two decades, and reach no peak before 2050 – but well in 2035 in the low variant projection.

Figure 13:

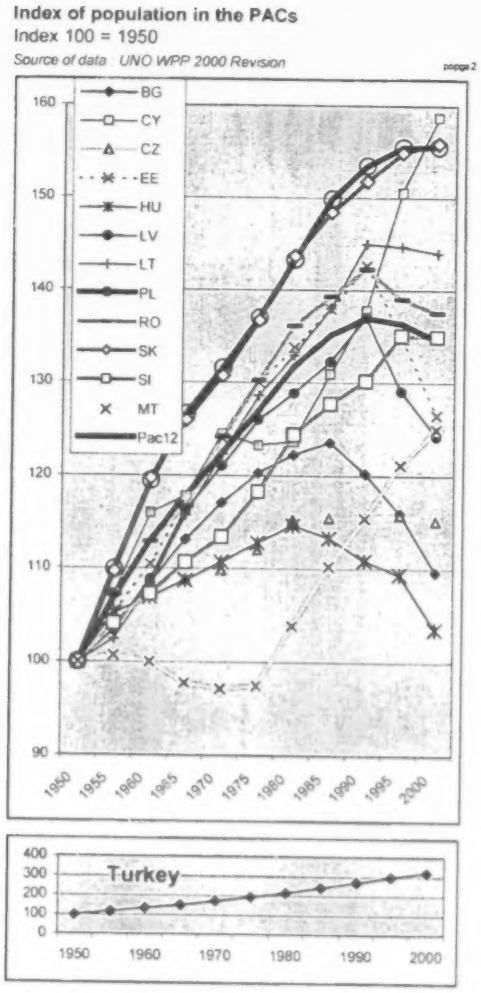

Figure 14:

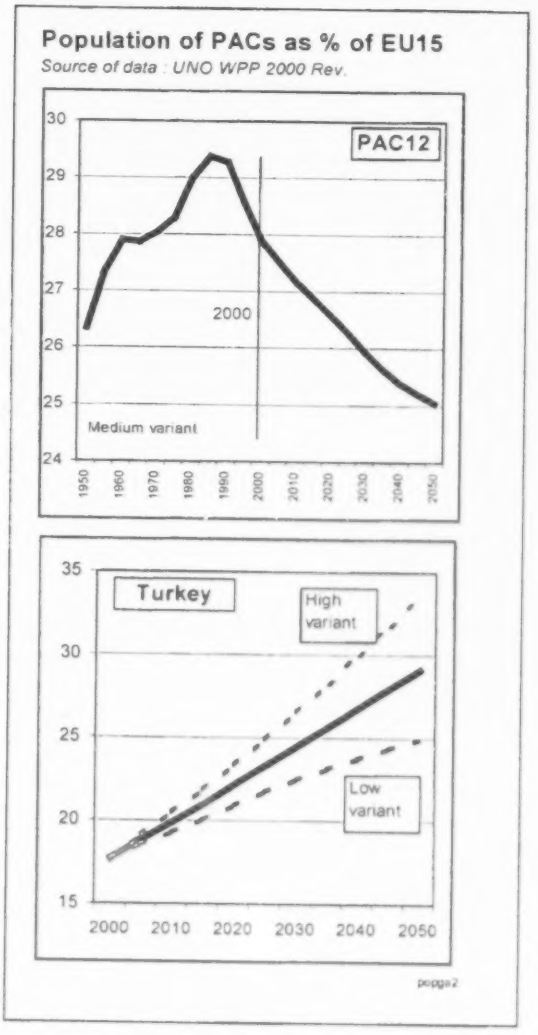

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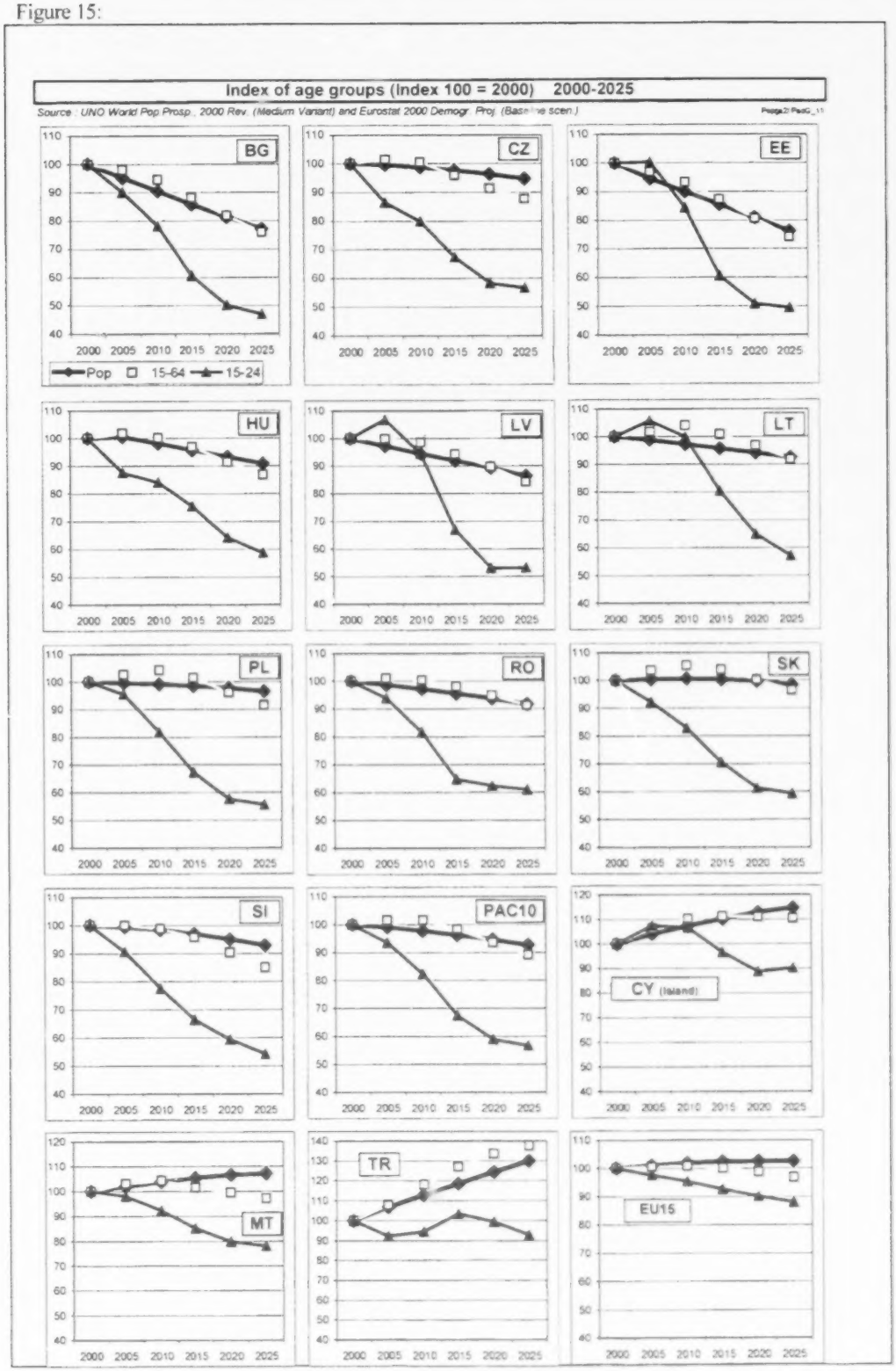
Figure 15:


Index of age groups (Index 100 = 2000) 2000-2025
Source : UNO World Pop Prosp., 2000 Rev. (Medium Variant) and Eurostat 2000 Demogr. Proj. (Baseline scen.)
BG
CZ
EE
HU
LV
LT
PL
RO
SK
SI
PAC10
CY (island)
MT
TR
EU15
Pop
15-64
15-24
2000 2005 2010 2015 2020 2025

D.1.1 Main demographic indicators

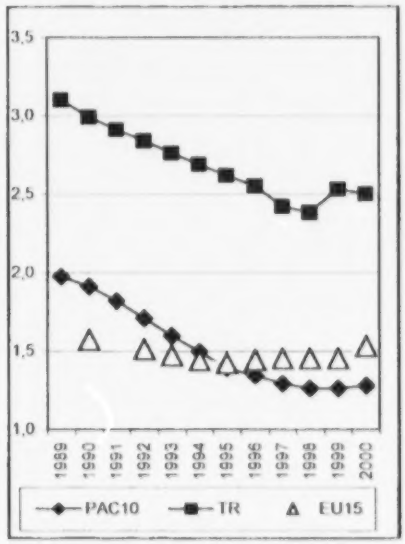
Fertility

The main source of uncertainty with demographic projections lies in the fertility rate and the migration rate, and much less so in the future of the mortality rate – with the usual assumption that no "catastrophic event" would introduce strong discontinuities, as events in the early 1990s happened to do.

Figure 16:

Total fertility rate - 1989-2000

Source : Council of Europe and Eurostat



AgeMarriagePAC

The fertility rate also has another dimension which should be emphasised. It gives, when family planning means are available, the most synthetic indicator of global confidence in the future. The fact is that the collapse in fertility over the last decade has now become rather stable but at very low levels on average: the total fertility rate, that lied above 2 until the late 80s, i.e. ensuring generational replacement, has reached a low point at 1.26 in 1998, going up to 1.28 in 2000 (see Figure 16). Some PACs show some recovery : Bulgaria from a low of 1.09 back to 1.25 in 2000, Estonia from 1.21 to 1.39, Latvia from 1.1 to 1.24. The decline of fertility erosion continues for Lithuania, Poland and Slovakia, reaching new lows in 2000 of 1.33, 1.34 and 1.2 respectively. It must be added that with fertility levels remaining at these low levels, the medium variant of the UNO projections would reveal over-optimistic.

Table 4: Age of females at marriage and first birth Total female first marriage rate (< age 50)

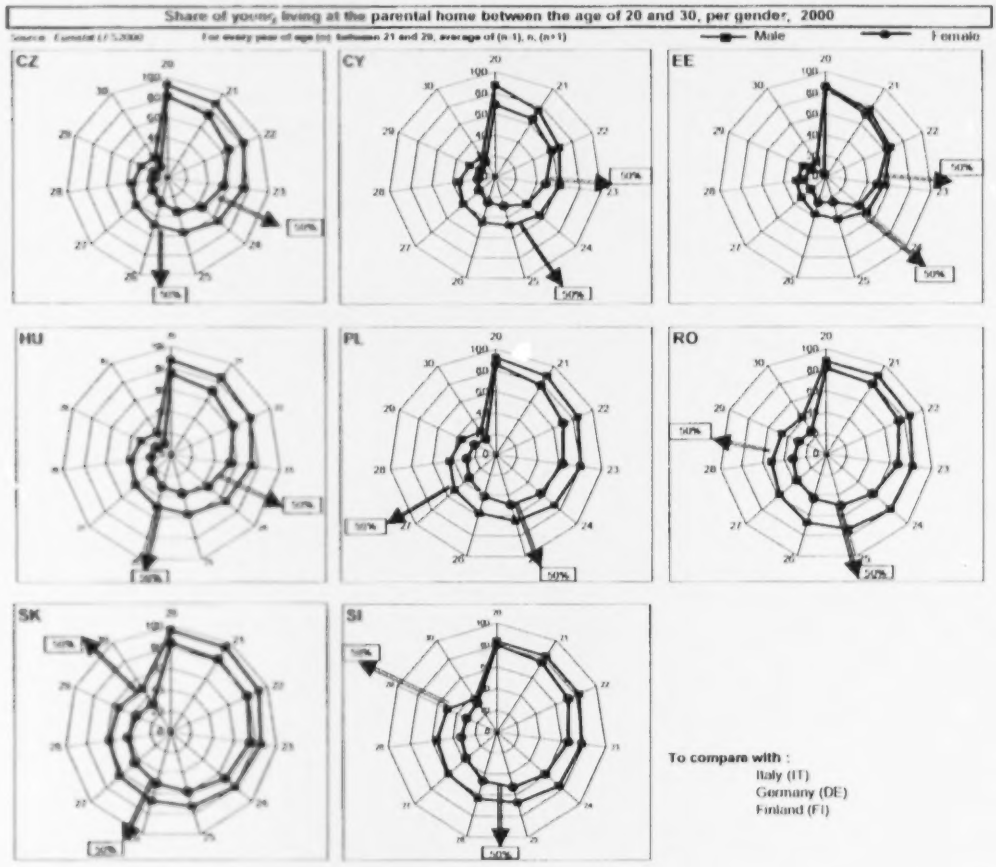
Source : Council of Europe, (Unw. Averages)

	EU15	PAC10
Mean age at female first marriage		
1989	25,8	22,3
1999	27,6	24
Mean age at birth of first child		
1989	26,3	22,9
1999	27,8	24,2
Total female first marriage rate (below age 50)		
1985	0,63	0,88
1999	0,59	0,51

Another related issue is the changing ages of marriage and fertility, as it contributes to explain the female employment profile per age. Historically, over the last centuries, eastern Europe has been known to preserve quite homogeneously an early marriage, with early births, when the western part of Europe has switched at a very early stage to delaying the age of marriage and fertility, resulting in limiting the population growth. Table 4 shows that on the one hand the number of first marriages has collapsed, with a reduction between the mid-80s and the late 90s by close to half, against a limited change in EU15. But on the other hand, it shows also that the different behavioral pattern is resisting: there is a shift towards delaying the marriage and the fertility age, but the gap between east and west is not being reduced. The number of births in the female age group 20-24 has moderately diminished in the west, but this is exactly where the core of the fertility collapse happened in the east: from 828 live births per 1 000 females aged 20-24 in 1989 down to 410 in 1999, compared with an EU15 average at 250 in the same age group, from a minimum of 119 in

Spain to a maximum of 359 in UK. This is certainly changing the conditions of accessing longer education and better insertion into the labor market for young women, not to mention the implications for young men.

Figure 17a



Age at which 50 % have left the parental home (1999):

Male	IT: 29.7	(Spain 29.5)	DE: 23.6	FI: 17.5 (1995)
Female	IT: 27	(" 27.7)	21.5	17 (1995)

A look at Figure 42 further in the text, shows typically say for Hungary, how the delayed marriage and parenthood could modify the activity rates per age, bringing their profile closer to the average EU15 pattern. Incidentally, the share of extramarital births has also climbed between 1989 and 1999 from 9 to 20 % (PAC10 less Romania), when it increased from 19 to 26 % in EU15 – with strong oppositions between the southern "extended/prolonged family" area and the Nordic nuclear/early leave family pattern[68].

[68] See Giovanni B. SGRITTA, Family and welfare systems in the transition to adulthood : an emblematic case study, Conference Family Forms and the young generation in Europe, European Observatory on Family Matters, Milan, September 20-22, 1991.

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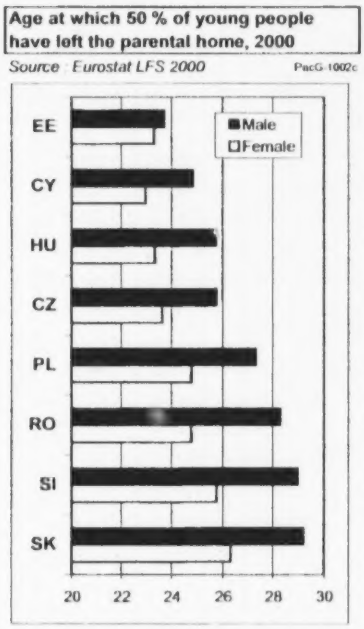
This combination of 1°) very low fertility rates, 2°) still relatively young age at first marriage and first birth and 3°) heavier burdens put on the family to manage the longer transition from youth to adulthood would bring the PAC10 closer to a model that would lie somewhere between the Mediterranean model and the so-called continental model, anyway at an increasing distance from the Nordic model with which it had been sharing some common features until the 1990s. Figure 17a and 17b show how the period of living at the parental home has now come to levels closer to the Mediterranean pattern, very clearly in Slovakia and Slovenia, followed by Romania and, to a lesser extent, by Poland, with levels being closer to the continental pattern in Estonia, while Hungary is somewhere in the middle (no data available for LT and LV). Noticeably, the length of staying at the parental home involves a number of young people that goes very much beyond any share of participation to tertiary education, just as in the Mediterranean pattern.

The dilemma, in terms of policy implications, would here be between a higher and longer lasting burden put on families at the expense of fertility and at the cost of a fast overall aging, like in the Mediterranean model, and the costly priority given to family supporting policies in terms of schooling, further education, housing and age-dissymmetrical employment policies.

Figure 17b:



The main opportunity in this would be the time-window open to a massive extension of education after compulsory school. With an even longer postponement of adulthood, Italy and Spain show here indeed diverging results: Italy has not seized this opportunity to extend education, whilst Spain did. The shares of higher education among people aged 44-54 was respectively 9.8 and 15.2 %, and when the younger generation is hardly doing better in Italy (10.1 % in the 25-34 age group), the progression has been impressive for Spain (33.6 % of higher education in the same age group). If, on the side of individuals, the ambition of social ascending mobility is to be strong and if the collective support to extended education was adding strength, then the PAC10 would find in the present shift of the basic demographic indicators an unique historical opportunity to catch up with the educational requirements of the knowledge-based society. It must be added that at both the household level and at the institutional level, the global burden of children is diminishing at an extraordinarily fast speed. Figure 14 has shown the very fast decrease in the number of young people aged 15-24 over the next quarter of a century: in none of the PAC10 is the decrease less than 40 %, and it reaches 50 % in four out of the ten.

Life expectancy

The life expectancy at the age of 15, in EU15, has gained close to 5 years for males over the last forty years (55.7 years in 1960 and 60.6 in 1999), and close to 6 years for women (60.9 to 66.8). An anthropological approach would find in this shading off of death to old age and in the prolongation of life expectancy in good health – in other words in the reduction in life uncertainty – the most important factor bringing people to organise their lives more positively, with more forward-looking behaviors.

Table.5: Life expectancy at the age of 15

	Male			Female		
	EU15	PAC10	TR	EU15	PAC10	TR
1960	55,7	54,9	49,6	60,9	59,9	52,3
1999	60,6	54,1	55,3	66,8	62,5	59,3
Change	4,9	-0,8	5,7	5,9	2,6	7

PAC10 : unweighted averages *Life-exp_PAC*

Source of data : Council of Europe and Eurostat

This self-sustaining achievement of economic and social progress, where the value of life is augmenting at both an individual and collective level, has not yet proved similar in the PACs. The life expectancy when leaving the childhood is now in the PAC10 only close to what it was in the EU15 in 1960. And their progression over the last 40 years is inconsistent: +2.5 years for women aged 15, from 59.9 to 62.5, but the expectancy is diminishing for men by 0.9 year over the same period, from 54.9 to 54.1 (see Tab. 5). Only Slovenia and the Czech Republic are showing a real improvement for both genders (+2 years and +3 years for men, + 3,5 and + 5.2 years for women respectively. If no significant lag appears when considering the two Mediterranean island states, Cyprus and Malta, the evolution was quite specific in Turkey: notwithstanding a fast progression over the last 40 years, Turkey is still lagging behind the value of EU15 by over 6 years for men and by over 7 years for women.

As life expectancy is the main determinant, besides the past calendar of birth cohorts, in the process of global aging, this lagging behind of the PACs is also leading to a globally slower growth, over the decades to come, of the burden related to the aging process. But considering PAC10, the above 8-year difference in life expectancy between women and men, as against 6 years in EU15, will emphasise the problems of family-derived rights.

Migration

In the specific case of the PACs, migration, whether inward and outward, is certainly the main source of uncertainty for future overall demographic evolution, and certainly so in periods characterised by low levels of fertility. An additional problem lies here with the generally limited reliability of migration data. This low reliability is aggravated, in the case of the PAC, at least in the case of the PAC10, by a double phenomenon. First of all, a general statement has been set forward about a "transitional mobility", linked to different aspects in the recent continental turmoil, whether or not it would be related to some shift from "pre-modernity" to "modernity"[69]. The fact is that the series of trade diversions, industrial reorganisations, sectoral shifts and financial changing constraints have lead to stirring the determinants of labor supply and demand, making a large number of people available for mobility, before some return to order, internal and external, can damp things down.

Second, being part of this stirring around, the migration from and into PAC10 is of a rather new kind, that makes the measuring uneasy. Wallace and Stola call it the "incomplete migration", involving circular workers that are moving to another country on a non-permanent basis, and for short periods: residential settlement is here replaced by circulation, were it or not documented as tourism. And what is particular to the PAC10 is that this incomplete migration is working both inwards and

[69] See the wide coverage of the migratory features by Claire WALLACE and Dariusz STOLA (Ed.), Patterns of migration in Central Europe, Palgrave, Basingstoke & N.Y., 2001.

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outwards: for example Polish workers going to the west for some months, and Ukrainians coming to Poland for some weeks. Some movements are intra-PAC, for example with Romanian workers going to the Czech Republic. In terms of labor market efficiency, these movements are involving only limited segments of the labor market, with no or low social visibility. Ukrainians in Poland, for example, will be on the "dirty work", or be involved on some low scale trade. The main social problem behind this is that the people involved are in most cases being trapped by the weakening at both ends of their social ties, ending with a loose status. The case studies in Wallace and Stola enlighten the" incomplete migration", with estimates for example of 800.000 Ukrainians "who in 1995 were involved in some kind of employment in Poland", staying there for some weeks[70].

Figures drawn from the LFS or from the Council of Europe, as in Table 6, are therefore of a limited relevance. Considering only residential settlements, they suggest that for 9 PACs we would have an average of 3.5 % of non-nationals, with much higher shares in Estonia (above 30 % of Russians) or in Romania (6 % of Hungarians and 3 % of other nationals) or in Cyprus (8% of non nationals). The data from the Council of Europe, for the Czech Republic, are 40.000 people from the neighbor Slovakia, and significant numbers of nationals from Ukraine, Poland, Russia and Vietnam[71]. It also shows 57.000 Romanians in Hungary. However, these stocks of non-nationals appear rather patchy, not to mention anything about the flows where the measure is still less reliable.

The outward flow indication for Poland has been oscillating, in the 1990-97 period, between 18 and 26.000, coming back closer to 20.000 in recent years. Against this outward "permanent change of residence", the inward move was, in Poland, on a trend from close to 5.000 per year in the early 1990s to above 8.000 after 1994. The net figure would be close to 12.000 emigrants, i.e. 0,3 per 1.000 population net migration rate, which can be considered as low. Bulgaria is reported to have lost 650.000 nationals between 1989 and 1996, with levels peaking in 1989-90, with close to 100.000 going to Turkey and with some stabilisation around 45.000 emigrants p.a. in recent years[72]. Emigration levels peaked in the Baltic countries in 1992, mainly because part of the Russian population left. The Czech Republic had 35.000 foreigners with a work permit in 1990, but 200.000 in 1996 [73], moving down to 166.000 in 2000 (Table 6).

Considering the recent migratory flows, the generally prevailing impression is that after the disruptions in the early 1990s, the flows were reduced significantly over the last five years. It is useful to compare these figures with the overall net immigration in EU15, that recorded between 6 and 900.000 (p.a., net) immigrants to EU15 over the last decade.

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[70] Marek Okolski, Incomplete Migration: a New Form of mobility in Central and eastern Europe. The Case of Polish and Ukrainian Migrants, in Wallace & Stola, op. cit., p115.

[71] These levels are globally confirmed by Dusan Drbohlav, in Wallace & Stola, op. cit, p. 205.

[72] Report on the demographic situation in 12 Central European Countries, Cyprus and Malta, Eurostat Working Paper (3/1999/E/n°15), pp. 3-4. See also Facteurs d'attraction et de répulsion à l'origine des flux migratoires internationaux, Eurostat Working Paper (3/2000/E/n°14), p.45.

[73] La Mesure de la migration clandestine en Europe, Vol. 2: Rapport des experts, Eurostat Working Paper (3/1998/E/E/n°7).

Table 6: Nationals and non-nationals in the PACs

Source : Eurostat LFS 2000	as % of population											
	BG	CY	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
Nationals	99,4	92,1	99,6	66,5		99,2			90,3	99,6	99,8	96,4
Other PAC-12	0,0	0,6	0,1	0,6		0,1			6,4	0,2	0,1	1,5
Non-PAC	0,6	7,3	0,2	32,9		0,7			3,3	0,2	0,1	2,0
Source Council of Europe (data at 1/1/2000)												
Persons from :	(x 1,000)											
	BG	CY	CZ	EE	HU	LT	LV	PL	RO	SI	SK	Total
	NA	NA		NA		NA		NA			NA	
PL			18		4							22
Russian Fed.			17		3		19					39
SK			40									40
Ukraine			66		11		1					78
Vietnam			25									25
Germany					10							10
RO					57							57
Bosnia-Herz										20		20
TOTAL			166		153		26		1	43		389
CoEur subtot as % of population			1,6		1,5		1,1			2,1		

If we now look at the registered stock of nationals from the PACs that are registered in the EU15 (Table 7) we find close to 600.000 nationals from PAC10, and close to 3 million from Turkey. Among the nationals from PAC10, above half of the total are from Poland, with slightly more than 300.000 people. We also find 111.000 nationals from Romania and 63.000 from Hungary. This means that in no case the PAC expatriate to EU15 reach 1 % of the homeland population. Only Turkey shows a higher share, with the equivalent of 4.5 % of the homeland population being resident in EU15.

Very noticeably, both for nationals from PAC10 and from Turkey, Germany is by far the first destination country: 46 % of nationals from PAC10 (of which two thirds from Poland) and 79 % of the Turks. Austria comes next with 14 % of nationals from PAC10, with high shares of Czechs, Slovakians and Slovenians, and also 5 % of the Turks. France is hosting more than 1/10th of the Polish nationals. The Netherlands and France are hosting each 6 % of the Turks.

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Table. 7: Distribution of PAC nationals in EU15, 2000

Source of data : Eurostat LFS 2000

Nationals from:	As % of PAC nationals in EU15*															EU15**	
	AT	BE	DE	DK	ES	FI	FR	GR	IE	IT	LU	NL	PT	SE	UK	%	(x 1,000)
BG								38								100	*20*
CZ	57															100	*25*
EE						91										100	*12*
HU	14		58												13	100	63
LT																100	*12*
LV																100	*4*
PL	8	2	59				11	4						4	7	100	309
RO	19		40		6			5		16						100	111
SK	42															100	*14*
SI	83															100	*8*
Pac10	14	2	46	1	2	2	8	5		4		2		3	10	100	577
CY								52							44	100	*18*
MT															95	100	*10*
TR	5	2	79	1			6					6		0,4		100	2983
Pac12	14	2	43	1	2	2	7	6		4		2	1	3	13	100	606
Pac13	6	2	73	1			7	1		1		5	0	1	3	100	3589

* Percent given only when the equivalent number is above the LFS reliability limit in the host country

** LFS Reliability limit at EU15 level is

501_extr_PAC

The UK has over 9/10th of the nationals from Malta. Those from Cyprus divide between Greece and UK. And Greece, as expected, concentrates also a high share of nationals from Bulgaria. By a similar neighboring effect, Finland takes most of the 91.000 nationals from Estonia. Last, some "Latin effect" seems to direct significant shares of Romanians to Italy and Spain, but not to France. And Romania is certainly the PAC10 country with the highest emigration potential.

Some additional features of the PAC-nationals in EU15 are noteworthy. The employment rate of PAC-12 nationals aged 15-64 is similar to the average of EU 15: 60 % against 64 % (2000). But the Turks show an employment rate that is significantly lower, at 47 %, both because of men (61 % against 71 %) and even more so for women (33 % against 54 %). The unemployment rate lies at 8 % for EU15 on average, but at 11 % for nationals from PAC-12, and at 18 % for Turks in EU15. This means also that one could imagine that some kind of "return on immigration" in terms of additional labor supply would be high with immigrants from the PAC-12, and lower with Turks.

One of the reasons for this lies certainly in the educational levels acting as a determinant of the person's employability. The immigrants from the PAC-12 show significantly higher shares of High educational level (ISCED 5-7) than is globally the case in their homelands: one quarter for the 25-64 age group, approx. making double their share in the PAC-12 homelands. The share of "Low" educational levels (ISCED 0-2) for the same age group (25-64), being close to 20 %, is also below half of the share in the homelands. But it must be noted that the nationals from PAC12 are also highly concentrated in the low occupational positions: considering people in employment, 47 % of them and also 72 % of Turks against 32 % of EU-nationals are in the three lowest ISCO-positions (ISCO 1-2-3).

Lastly, considering their distribution in (Nace) sectors, the main points are the following: Turks who are employed show high concentration in Manufacturing Industry (Nace "D"), where over 40 % are

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concentrated (year 2000), while nationals from PAC12 are less "segregated". Manufacturing makes 20 % of them, just as for the EU-nationals. But, if we accepted to trespass the strict limits of reliability of the Labor Force Survey, some other sectors would appear to concentrate rather higher shares of PAC12 nationals in employment against their share for EU-nationals: Construction (Nace "F"), with 13 % against 7.9 %; "Hotels and restaurants" (Nace "H"), with 11 % against 4 % for EU-nationals; and finally, domestic services (Nace "P"), with 6 % against 1 % of EU-nationals - and 4 % of any third nationality.

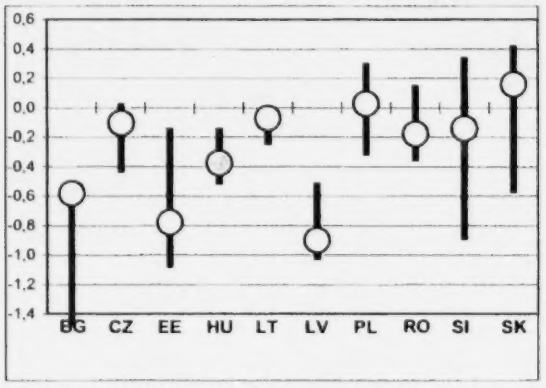
Figure 18:

Regional change in population, 1995-1999* (% p.a.)

Yellow point = National average

Blue line : regional min and max

Pac-PopReg



Number of regions per country : BG 7 ; CZ 8 ; EE 5 ; HU LT 10 ; LV 5 ; PL 16 ; RO 8 ; SI 12 ; SK

* 1995-1999 except LT, RO 1995-2000 and SK 1996-

Source of data : Eurostat New Chronos

D.1.2 Regional dimension

Figure 18 shows the changes in regional population in PAC10 countries over the last half-decade, 1995-1999 in most cases. At national level, for all countries but Poland and Slovakia, the change was negative. Among the 81 regions considered, only 22 had still some growth none of which with more than 0.42 % p.a. as in Eastern Slovakia. Another 54 regions show a decline between 0 and –1 % per year. Only 5 regions show a decline slightly above 1% a year, like the two Bulgarian regions along the Black Sea, the capital region (Tallinn) in Estonia, the region of Riga and the Russian boarder region in Latvia. Besides the South-eastern region of Bulgaria, no situation of clear collapse is obvious.

No obvious correlation appears with some economic variable. For example, there is no correlation with any high share of agriculture in employment. For Eastern Latvia, geopolitical factors might be intellectually tempting. For the two Baltic States that are mentioned above, for Prague and Bucharest, being the capital region seems to involve a sharper demographic decline. But on the whole no clear cut correlation is apparent.

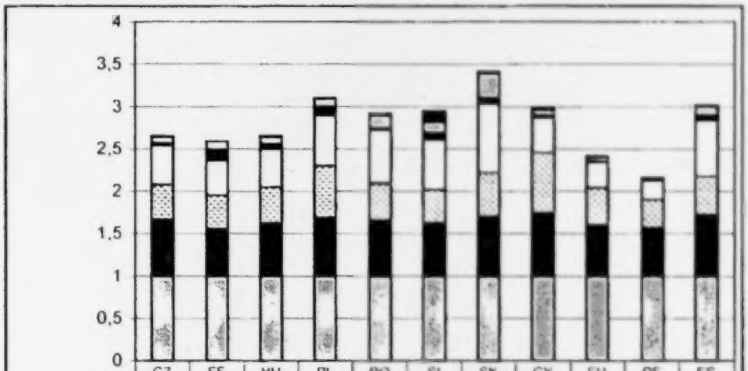
D.1.3 Household composition

The household composition keeps a track of the past demographic evolution, illustrates some basic "cultural behaviors" and distributes the risk management between private/family sphere and public sphere. In Figure 19, Estonia or Germany show some traces of higher divorce rates, with a lesser share of partners. Germany and the Czech Republic show a low number of children aged 0-14, whereas Poland shows their higher impact – mostly because the Polish fertility rate had less declined until the mid-1990s compared to the other countries of PAC10 (respectively 2.09 and 1.97 in 1989, against 1.81 and 1.46 in 1994).

Figure 19:

Average household size and composition of average household*, 2000

Source of data :Eurostat LFS 2000



	CZ	EE	HU	PL	RO	SI	SK	CY	EU	DE	ES
other	0,02	0,00	0,01	0,00	0,02	0,14	0,02	0,03	0,02	0,01	0,01
other relative	0,07	0,10	0,08	0,10	0,15	0,12	0,29	0,06	0,04	0,01	0,11
ascendant	0,03	0,13	0,06	0,10	0,03	0,08	0,07	0,03	0,02	0,01	0,05
children >14	0,46	0,41	0,45	0,60	0,62	0,59	0,81	0,42	0,30	0,23	0,67
children 0-14	0,41	0,40	0,42	0,61	0,43	0,39	0,51	0,70	0,44	0,33	0,45
spouse/partner	0,67	0,56	0,63	0,69	0,66	0,63	0,71	0,75	0,60	0,57	0,72
reference person	1	1	1	1	1	1	1	1	1	1	1

* Only private households EU = weighted average of EU15 less DK, FI, IE.

The Slovak Republic, to an even larger extent than Spain, shows a high share of children aged over 14 remaining in the parental home – as a confirmation of chart 5 and 6. Nowhere as much as in Estonia we have high shares of ascendants, with 0.13 ascendants on average per household, followed by Poland (0.10), and further down by Slovenia (0.08) that is the same level as Belgium, first by far within EU15. When summing up to the ascendants the "other relatives" and "non relatives", we find impacts that are exceptionally high in Slovakia (0.38) and Slovenia (0.34), but also in Estonia, Poland and Romania (all between 0.20 and 0.23), when the highest EU15 values are just below this level (between 0.17 and 0.20 in Spain, Portugal and Belgium). At the other end we find the Czech Republic (0.12) and Hungary (0.15), or Cyprus (0.12), all at levels much above the EU15 average (0.08). This is depicting a situation of largely shared "extended cohabitation" in most PACs, opening to a wider private/internal risk sharing, with only the Czech Republic, Hungary and presumably the Baltic States closer to a west European (non-Latin) pattern. As for Turkey, the limited indications that are available suggest that the system of reference remains quite different: according to partial data, the average household size lies there above 5.

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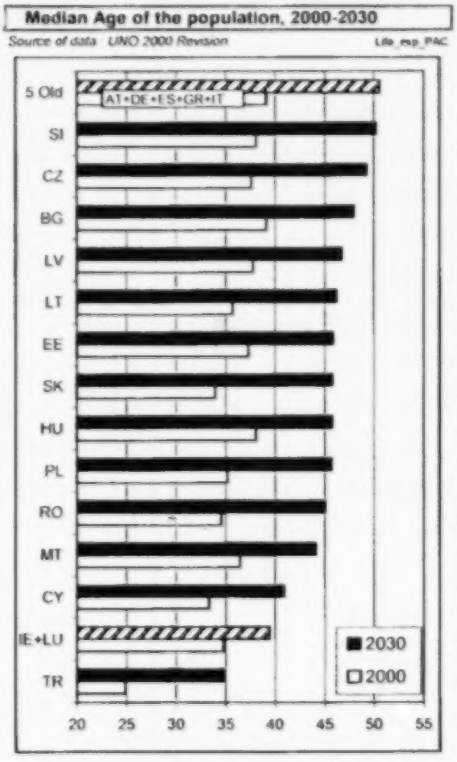
The motive for this can certainly be partially related to insufficient housing or insufficient jobs besides what would be named some "cultural behavior". And the share between the different factors can well change in line with economic recovery. But on the whole such extended household is certainly buffering, at the private level, the present difficulties, and will continue to do so. But the question is of course whether this would not imply the high long- term cost of a persistently low fertility. The Mediterranean Member States show how the overburdening of the family has installed a low fertility model that will be very costly in terms of economic growth and labor supply with a time horizon of one to two decades ahead.

Last, the share of person living alone seems also half-way closer to the Mediterranean model: it lies below 10 %, as in Italy, even below 5 % in Slovakia, compared to 11 % on EU15 average, with shares above 15 % in the Nordic countries. Considering elderly persons, the scaling compared to EU15 is similar, rather on the lower side of EU15 average. Again, only Slovakia is showing typical "extended family" features, with one quarter of people aged 65 and over, or even 80 and over, living alone. This characterises Slovakia as the PAC10 country that lies closest both to the Italian "young-oriented" and to the Spanish "elderly-oriented" extended family. (Paragraph based on data communicated by Eurostat for the Czech Republic, Estonia, Hungary, Romania, Slovenia, Slovakia).

D.2 The triple aging

D.2.1 Global aging: 65+ / total population

Figure 20:



5 Old = Austria + Germany + Spain + Greece + Italy

Considered very globally, it can be stated that the PAC 10 are lagging, in terms of global demographic aging, by something like a decade. This has to be related to the delay in the baby boom that occurred in Central and Eastern Europe, as in Germany, only in the 1950s or 1960s instead of the early years after the war, like in France. And the demographic depression of the last decade in PAC10 will be spreading the pressure of aging from the bottom of the age pyramid.

Beyond this general statement, the main indicators of aging suggest that over the next two or three decades, convergence towards a common pattern will develop, and in a rather more homogeneous way among the PAC10 compared to EU15. As portrayed by Figure 20 and 21, advanced calendars of aging, as in Austria, Germany, Spain, Greece or Italy, are also to be found in the Czech Republic and in Slovenia, and in Bulgaria to a lesser extent. For these countries, the main indicators of aging are facing dramatic changes over the next two or three decades. For example, the 5 "old" plus the Czech Republic and Slovenia will all have, by 2030, a median age of the population that would be between 49 and 52,

compared to, by then, an EU15 average of 46.6, and a PAC10 average of 46.8.

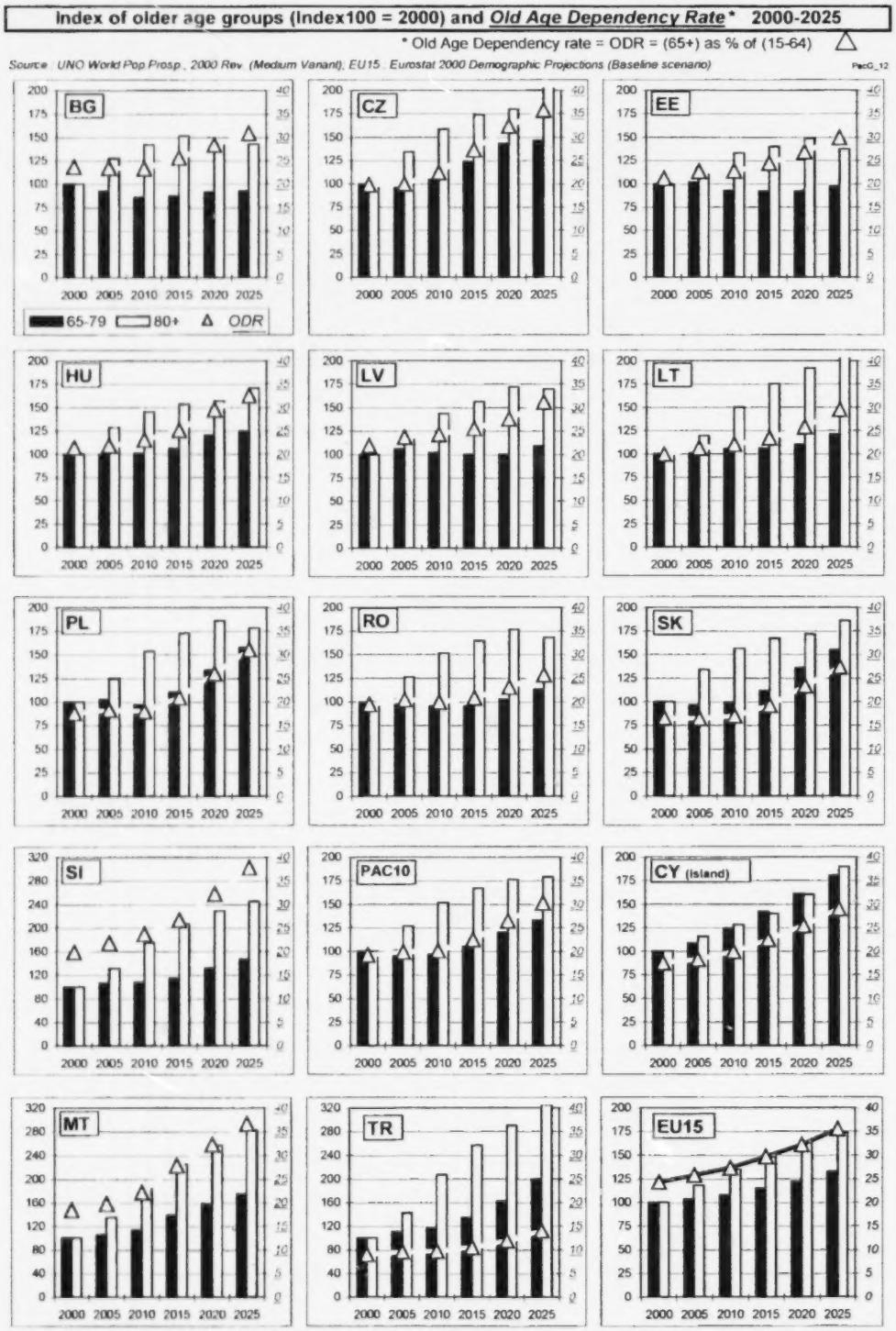
At the other end of the scale, only Cyprus will present by 2030 a low Irish-like median age, close to 40 years – not to mention the special Turkish case, lagging far behind, which means that it will remain a much younger country. For all other PAC10 countries, this indicator would be close in 2030 to the EU15 average, i.e. slightly above 45 years, even if Poland, Romania and Slovakia are starting from a slightly "younger" situation. Malta would continue to lag somewhat behind the average.

But this global indicator of how far our societies will be characterised by aging is still very general. It may well suggest that the political compromises would move further towards gerontocratic priorities, for example by validating more the assets inherited from the past, through deflationary policies, rather than favoring risk-taking, helping the creditors against the indebted.

In relation to the economic burden of aging, the "old dependency rate", i.e. the ratio of people aged 65 and over to the working age (15-64) population, offers a more targeted indicator. Examining first the EU15 standard, as in Figure 19, we find that EU15 is starting in 2000 from a high "old dependency rate. In 2025, this ratio will lie at 35, with the age group 65-79 having increased by one third, and the age group 80 and over by 75%.

Compared to this EU15 average, we find among the PACs, four countries, the Czech Republic, Hungary, Slovenia and Malta presenting similar ratios in 2025: their progression, except for Slovenia, will be slower than EU15 over the next decade, but faster after 2010, which means a fast increasing burden of costs related to elderly people, pensions or health cost, only delayed and concentrated on the second decade of the century. Only for Slovenia will the progression be higher throughout the next quarter of century, with the number of people aged 65 and over increasing at a relatively constant 2 % p.a., bringing the "old agedependency rate" close to 38 % in 2025 – i.e. similar to the highest levels that EU15 Member States would show by then, like Italy (40%), Finland (39 %), Belgium, Germany and Sweden (all around 37%), and far above the Irish minimum of 24 %.

Figure 21:



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The other PAC10 countries show also a clear acceleration of the aging process after 2010 (Bulgaria, Poland, Slovak Republic) or after 2015 (Baltic States). Most would reach in the 2020s a value of 30 %. Only Romania and Slovakia would stay closer, in 2025, to 25 %. The trend for Romania shows the flattest profile: the number of people aged 65-79 would hardly change until the third decade. Therefore, if the demographic projections were reliable, the question of aging in Romania can reasonably be considered as not being on the agenda for some time ahead: moreover, this is mainly due to past demographic evolutions and not to any higher mortality in older ages, where Romania is doing rather better than the Baltic States or Hungary when considering the life expectancy either at 45 or at 65. In Slovakia, the pressure will arise not so much from the absolute levels, but more from the speed of change over the second and third decade of the century, as it will for Poland.

This means that besides the single case of Romania, the question of financing the pension system is necessarily to become a matter of high concern, and even more so when the speed of change is high. This designates the Czech Republic, Slovenia, Slovakia and Poland as the places where far reaching anticipation is most needed, unless these countries accept to enter a succession of uneasy reforms that catch up with the real evolution. It might certainly be possible to delay the core of the reform into the 2010s, but any laxity in the near future could prove costly by around 2015. When close to half of the overall population will be aged 50 and over, reforming the system becomes exceptionally complicated if it is to conceal the pension system with intergenerational equity.

D.2.2 Elder aging : 80+

Figure 22:

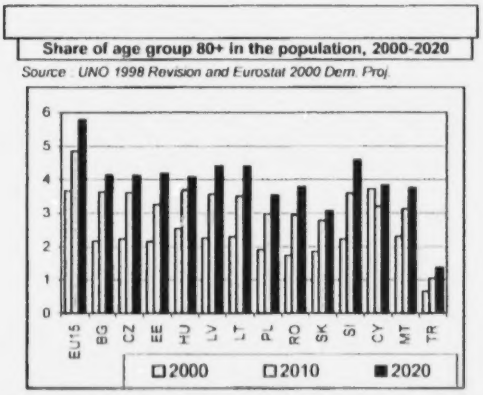


Figure 22 shows also how, in every PAC10 country, in Malta and Turkey (but hardly in the island of Cyprus) the number of people aged 80 and over will grow significantly faster than the age group 65-79. This is usually related to the risk of increasing health cost and increasing duties of care taking for the descendants – depending on the share between the families and other institutions. Chart 10 shows that on the whole, the PAC10 countries would continue to have lower shares of 80+ in the total population over the next two decades. Only Slovenia will be above 4,5 %, when EU15 will come close to 6 %. Cyprus, being close to the EU15 level in 2000, will experience little change.

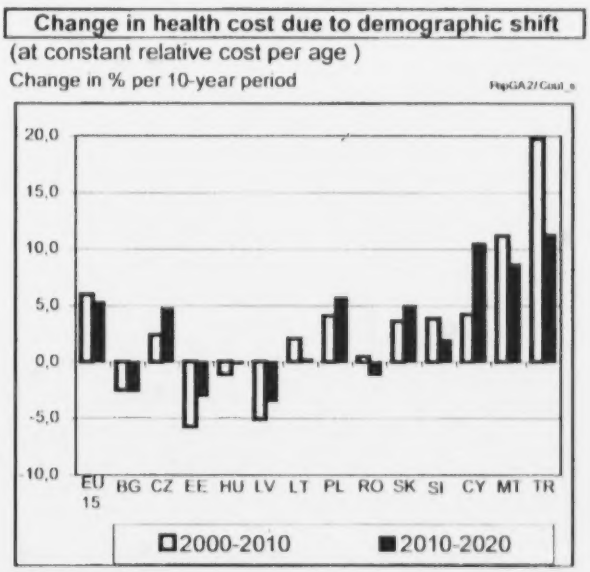
It is interesting to make a rough estimate of the effect that this demographic shift would have by itself, *ceteris paribus*, on total health budgets. We must then apply the relative cost per age group upon the demographic projections, , knowing that health expenses grow considerably with age. If we base this on the estimates made by OECD, it can be assumed that for health expenses lying at 1 cent

for people aged below 65, the expenses would lie at 2.5 cent for those aged 65-74 and at 4.5 cent for people above 75. [74]

The results for PAC10 (see Figure 23) show that only in Poland would the demographic shift cause the same kind of growth as in EU15: slightly more than 5 % over a decade, or +0.5 % per year. The pressure would be slightly lower, but only for the coming decade, in Slovakia and in the Czech Republic. The effect would be even weaker in Slovenia. The demographic shift, combining a decline in the younger age group with the increases in the elder age groups, would relieve the pressure in Bulgaria, Hungary and Romania. In Cyprus (Island), Malta and certainly in Turkey, demography by itself will fuel fast increasing health budgets.

Here again, the buffering of these costs relies on the ability, through "cultural behavior" or crisis adaptation, of families or "extended households" to modify the distribution of costs. There is of course a link with the extent to which the aging people are granted a safe revenue and access to social security.

Figure 23:



Relative health cost per age :
0-64 : cost = 1 ; 65-74 : cost = 2,5 ; 75+ : cost = 4,5
Demogr. Proj. : UNO 1998 Revision and Eurostat 2000

[74] See A Society for all ages, Employment, Health, Pensions and Intergenerational Solidarity, Vienna Conference Paper, 12-13/10/1998, Austria, Section 3.

D.2.3 Working age aging: 50-64 / 15-64

Figure 24 shows two indicators related to the aging process within the working age group, i.e. 15-64[75]. The first indicator shows the share of the population aged 50-64, making 3/10th of the age span, in total, in 2000, 2010 and 2020. We are still, in 2000, in a situation where these 50-64 make up less than 3/10th of the total working age population in all countries, as a legacy of the times when age pyramids had larger bases which were narrowing with increasing age. In Turkey, they still make only 15 %, and just under 20 % in Ireland. But the increase over the next two decades is very significant. It would jump the 30 % threshold as soon as at the end of the current decade in Slovenia, in the early 2010s in the five EU Member States referenced as being the "old" countries (Austria, Germany, Greece, Spain and Italy), and before 2020 in Latvia, Estonia, Lithuania, Bulgaria, Romania and the Czech Republic. Coming close to this threshold, we would then have Malta, Hungary, Poland, Slovakia, while Turkey will reach only 22 %.

The relevance of this is that in a global situation where the young labor force has ceased to be the abundant factor, the need to keep aging workers fully capable and qualified means that a complete renewal in the age management by age of human resources becomes a condition *sine qua non* of economic growth. Two lines of change are now visible among the countries that, being the first to face the problem of low young inflows to the workforce, are exploring the ways to cope with it. On the one hand, Sweden is showing how high participation in the vocational training for aging workers is one of the main means to achieve high employment rates for people up to their mid-sixties. On the other hand, at the level of many enterprises, the concern for adapting working conditions to aging workers is becoming more common. Instead of simply adopting defensive measures, the most advanced practices tend now to prevent, in the long term approach, the burn-out syndrome, through organisational changes that avoid trapping aging workers in closed professional paths, for example through the learning organisation and the participative management as means to build new forms of competitiveness that are coherent with the emergence of the knowledge-based society[76]. The prospects of the aging workforce in the PAC, and certainly in the PAC10, are now such, whether or not fertility was to recover in the coming years, that these themes will necessarily become a common concern from Tallinn to Malta.

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[75] Within the EU, the 15-64 age group makes over 99 % of the workforce, as very low employment rates are to be found after the age of 64. In the PAC10, we find only one country where the workforce aged 65 and over represents a significant share of the total number of people employed: Romania, where the people working after 64 make 10 % of the total employed population, and with 4/10[th] of them working part time. All other countries show much lower shares: close to 2.5 % in the Baltic States, Poland and Slovenia, and so in Cyprus; slightly above 1 % in Bulgaria and the Czech Republic, well below 1 % in Hungary and Slovakia. In all cases, the share of part-timers is high. Source of data: Eurostat LFS 2000.

[76] See European Foundation for the Improvement of Working and Living conditions, *Ten years of working conditions in the European Union, 2001*, Dublin, available at http://eiro.eurofound.ie. Also Keith SISSON, «Direct Participation and the Modernisation of Work Organisation », 2000, same website. Also H.-J. Bullinger and J. Pack, The Impact of Organisation and Automation Level on the Qualification of Workers in Production Systems, in Y. Nof (ed.), Handbook of Industrial Robotics, 2[nd] Edition, John Willey & Sons, 1999.

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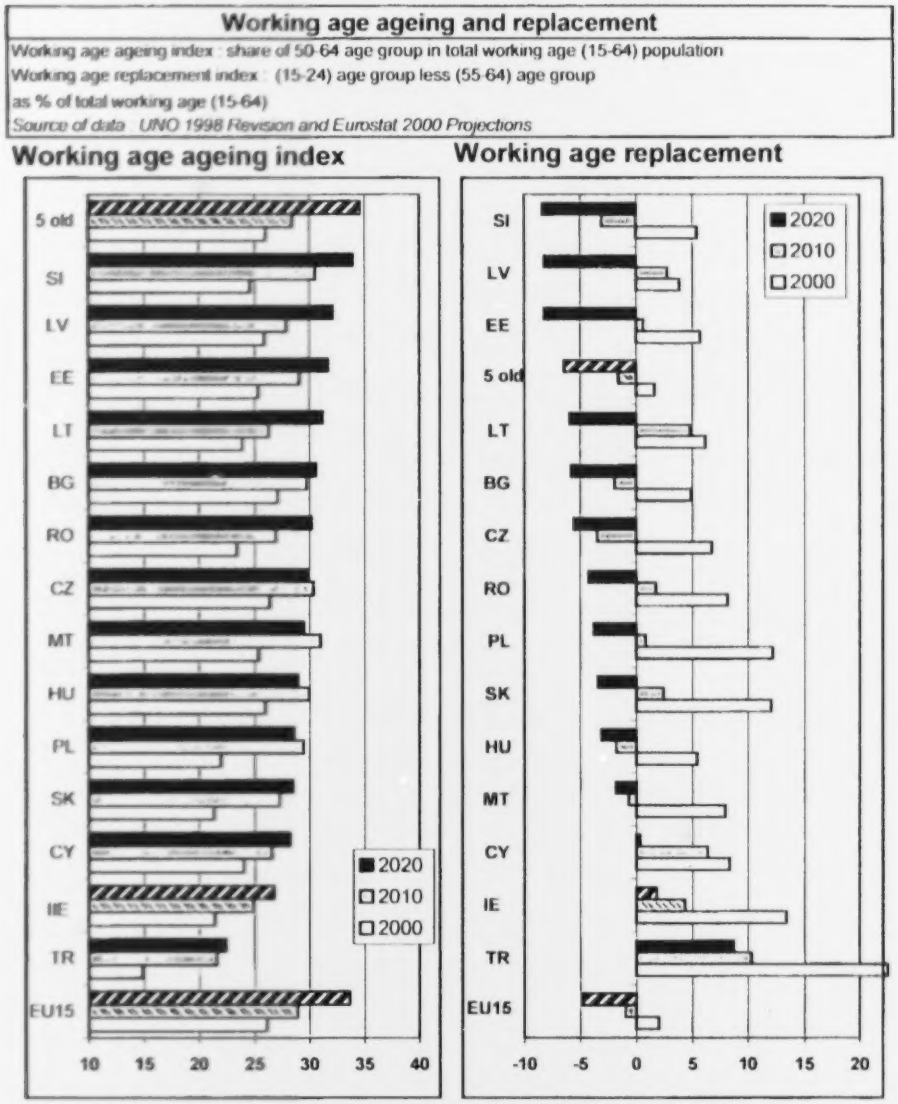
Figure 24:



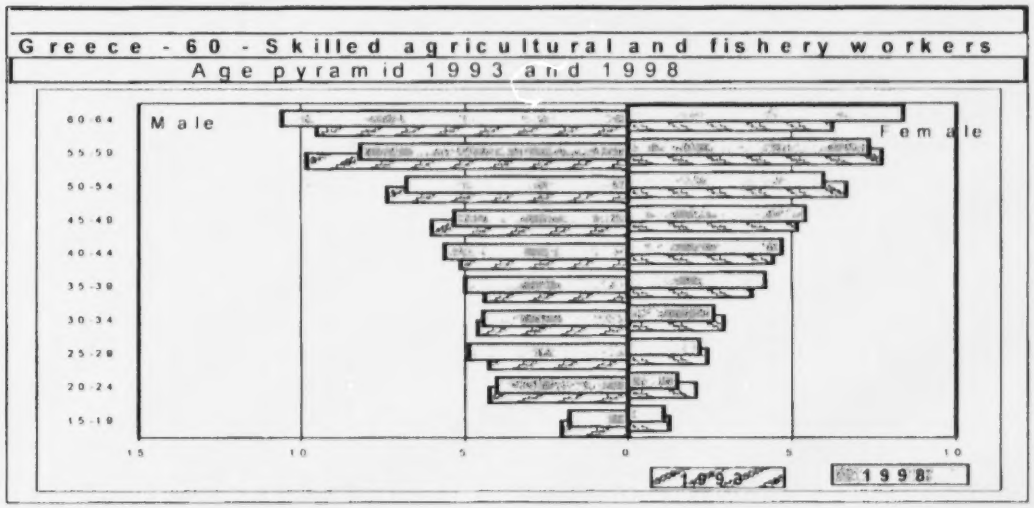
The second indicator is enriching some dimensions already suggested by the first one: it considers the outnumbering of the young incoming people over the elder outgoing people that they have to replace. Technically, this replacement index is making the difference between the 15-24 age group and the 55-64 age group, related to the to the total number of people in working age. When it becomes negative, it means that there are not enough young people to replace the outgoing people. Figure 24 shows that the index is remaining positive everywhere, and how it will quickly start to deteriorate. By 2010, we will have not only the "5 old" (Austria, Germany, etc.) with a negative index, but also Slovenia, Bulgaria, the Czech Republic, Hungary and Malta. By 2020, every PAC10

will have negative values, with worrying levels in most countries. Only Cyprus (Island) and Turkey will be, along with Ireland, in the list of countries where replacement is arithmetically feasible.

It must be emphasized that this single index is promising, with the highest level of certainty, the multiplication of local situations of labor shortage, threatening the growth either at enterprise, sectoral, occupational, regional or national level. Furthermore, the index needs not to become negative before the tensions appear: when the overall index is heading towards a zero value, it means by itself that in local situations the adjusting process will loose more and more continuity, whether or not some theoretical reserves, like unemployment, exist. The EU15 has shown over the last years how these tensions become more and more common, going beyond the question of a shortage of workers on the technological forefront (IT-workers), going beyond, also, the specific problems of stop-and-go activities like the building sector. Either because the employment rate of the working age population would have reached high absolute levels, like in Denmark or UK, and/or because the growth of employment would be high (Spain, Finland, Ireland, France, Netherlands, not to mention regional situations), these labor shortages have begun to spread around taking many different forms[77].

Here again as for the aging workforce, the quantitative constraint will act as a growth-inhibiting factor only inasmuch no quantitative changes are set to cope, through organisational changes. Very typically, high levels of professional qualifications buffer the skills and labor mismatches better than the low qualifications that are trapping people according to their credentials into a status of low employability, multiplying the mismatches either by lack or by excess. Therefore, the quantitative upgrading of a shrinking labor force towards higher qualifications is the only long term strategy that could ever cope with the effects of the demographic depression that occurred first in EU15 and now in the PAC10. The low skill/low wage strategy, that was historically relevant in the phase of large young inflows, is irrelevant in phases and places marked by the "long memory" of demographic depression.

Figure 25:



[77] See « Performance of the European Labour market, Joint harmonised EU programme of business and consumer surveys », European Economy No. 4, European Commission, 2000. Also G. Coomans, La situation en Europe, in « Difficultés de recrutement », Journée d'étude Commissariat Général du Plan, 15 mai 2001, Editions de la Documentation Française, published early 2002. See also National Skills Task Force (Department for Employment and Education, UK), Reports and "research papers" at www.dfee.gov.uk/skillsforce.

Last but not least, there is the question of aging specific to some sectors or occupations. Typically, if we had for example anywhere in the PAC12 an activity where the age pyramid was totally upside down, like for agricultural workers in Greece, (see Figure 25) then it would mean that the downsizing of the sector could be abandoned to … time: every year passing by would withdraw a high number of people just because they reach retirement age, which would ease policy making. Looking at this within the eleven countries for which we have the LFS results, it must be said that a limited number of such situations are to be found for PAC12, not to say anything about what might happen at any local level. In fact no other sector, at Nace-1D level making 17 sectors, apart from agriculture (Nace "A") shows any sign of such a specific sectoral aging.

Table 8 shows how agriculture is acting like a shelter for aging workers. The most extreme case is Romania, where agriculture is making close to 40 % of total employment (15-64), but as much as 83 % if we consider only the employed people aged 55-64, or 76 % for males and 90 % for females. Much further down compared to Romania, we find also this shelter effect in favor of aging workers in regions where agriculture remains with a high share of total employment, like Lubelskie and Podlaskie in Poland[78]. We do not find such a situation in the Czech Republic and Slovakia, where agriculture is also the less important, and hardly at all in Estonia and Hungary. Therefore, this importance of people that should be retiring soon – if they do, and which they might do only at a later stage in Romania – will be of some help to accompany the downsizing of agriculture. But at the same time, it must be remembered that the high shares of agriculture are also accompanying high shares of self-employed people: on average 25 % of the workforce in Romania and 23 % in Poland, against below 16 % for all the other countries. And this is also where the employment rates above the age of 65 are significant: 38 % in Romania, followed by 10-17 % in the Polish agricultural regions, and in all other regions, well below 10 %.

Tab. 8: Share of the 55-64 age group in the population aged 15-64
Share of the 55-64 age group in total employment and in agriculture (15-64)
Employment rate in the 55-64 age group, per gender, 2000

Source of data : Eurostat LFS 2000 1003Grapl

Share of (55-64) in the:	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	PAC10	CY	EU15
Population (15-64)	17	15	16	16	16	18	13	15	15	13	14	14	17
Employment (15-64)	7	8	12	6	11	11	7	12	5	5	8	11	10
Employment rate age group 55-													
Male	40	54	57	34	54	60	41	58	34	41	44	69	52
Female	13	23	39	13	28	36	24	47	15	11	26	33	30
Share of agriculture (Nace "A") in employment per age													
Female													
55-64	29	4	11	6	21	21	39	90	56	5		16	
15-64	10	4	5	3	13	11	17	41	8	4		4	
Male													
55-64	25	7	9	13	25	23	33	76	28	14		12	
15-64	14	6	8	9	21	15	18	37	8	9		5	

[78] See Employment and labour market in Central European countries, Eurostat, 1/2001, p. 27 sq.

Therefore, the automatic downsizing because of aging should not be overstated. The fact is that the people that were aged 55-64 in the year 2000, being the 1936-45 birth cohorts, are not many, and will be followed by the more numerous cohorts that were in 2000 the 45-54 age group. Therefore, we might as well imagine that the age pyramid in agriculture in 2010 would not really improve in the next decade, and this would be part of the survival of subsistence agriculture.

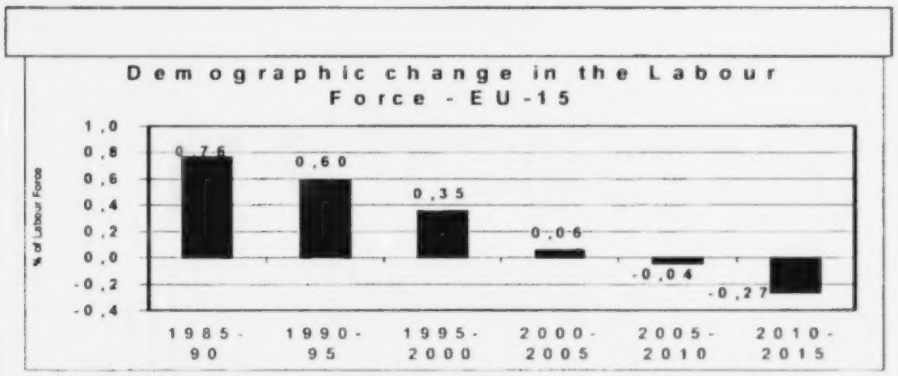
The other point is that observing both this importance of agriculture for elder employed people and the overall low employment rate in the 55-64 age group in the PAC10, even when compared to the low levels in the EU15, is suggesting how the economic reorganisation was managed: by pushing aging workers out of employment, which many Member States in EU15 have been doing over the last two decades Figure 42 and Table 8 show that, except in Estonia and Latvia, and also in Romania precisely because of the specific sheltering role of agriculture, this exclusion has involved women much more than men.

Finally, this is emphasising the need, for the next two decades, to find new ways of preserving the professional insertion of aging workers. It is doubtful that agriculture could go on playing this shelter role.

D.3 Demographic shift and labor supply

D.3.1 Demographic effects on the labor supply

Figure 26:



Demographic change calculated by applying constant activity rate per gender and 10-year age group, as in the last year of previous period, to the demographic projections

Expressed as % change in the Labour force per year

Source of data : Eurostat LFS and 2000 Demogr Proj. (baseline scen.)

E/Mobility/E110 2K/12

As illustrated by Figure 26, EU15 is coming close to a situation where demography is no longer fuellingany net inflow into the labor force: considering constant activity rates, i.e. considering no change for example in the share of women willing to join the labor market, there would be from now on more people retiring than young people coming in. In the second decade of the century, this demographic inflow will even become an outflow, that will worsen in the years after. And in some

countries, like Italy, this might result in severe cut backs of the Labor force: -0.6 per year (-6.5 % over the decade, against -0.3 % (-1.3 % over 10 years) on EU15 average.

Considering the PACs, as illustrated in Figure 27, we find three countries with Italian-like records: Bulgaria, Estonia, Latvia, all with – 5 to 6 % over the decade. Most others are very close to neutrality, with hardly any demographically driven change in their Labor force aged 15-64. Only Slovakia and Cyprus show some residual growth.

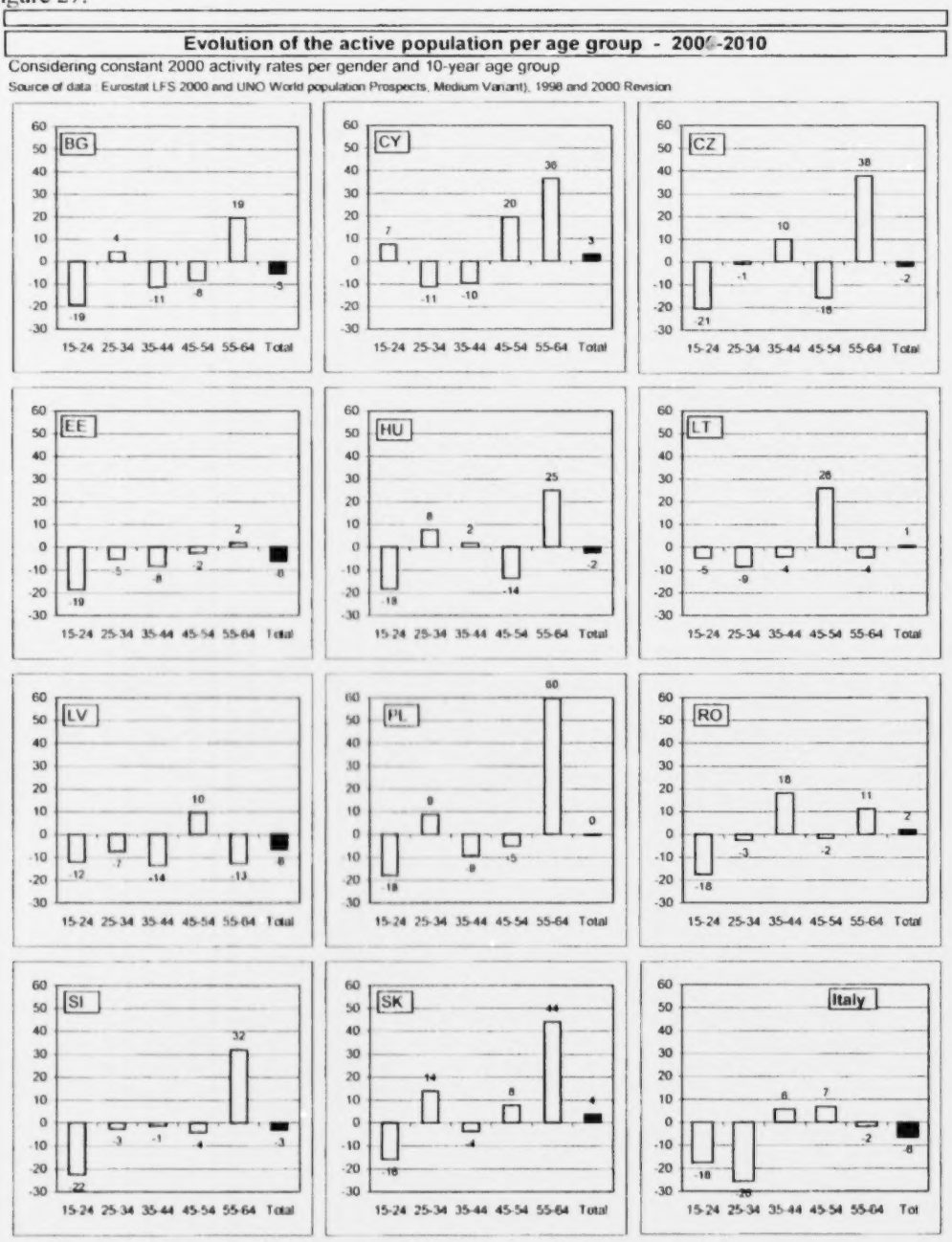
But similarly to Italy, with the sole exception of Cyprus, we find everywhere a far reaching decrease in the youngest age group – where Italy began showing the way a decade ago. At the other end of the age scope, we find the effect of the aging of the workforce, with strong increases. Poland shows the highest record, with the 55-64 Labor force that would increase by 60 % over the decade.

If we take in account the persistent fertility depression and the importance of the cohorts aged now around 50, there is no possible doubt about what should happen in the PAC10 in the second decade of the century: the labor force, inasmuch it would respond only to demography, will decline in most countries by far more than 1% a year, and by something closer to 2 % in Bulgaria, the Czech Republic, Estonia, Hungary, Latvia and Poland. The decline would only be slower in Lithuania, Romania and Slovakia. Residual progression would occur in Cyprus and Malta, not to mention Turkey where large progressions will continue.

D.3.2 Employment growth scenarios vs labor supply

The EU15, in order to reach the target of Lisbon of bringing the employment rate to 70 % by 2010, should achieve 1.3 % in employment growth per year. Unemployment rate should then have come down well below 5 %. And if the EU15, after 2010, continued to increase employment by this same 1.3 % p.a., then it would find itself with an employment rate above 75 % by 2015, as demography would by then be reducing the working age population. But with an employment rate close to this 75 % threshold, the Union would be in a situation of labor shortage, unable to feed any employment growth, and finding out that further economic growth would depend solely on increased productivity of a stagnating and soon declining labor force. The threshold of 75 % employment rate could maybe be lifted somewhat, to something between 76 and 78 %. But as Denmark, the USA or Japan have shown, this is more and more difficult when we have more and more young people who continue studying into their twenties, women that show lower participation rates when they are having children and people in their late fifties that are dropping out of the labor market. So, the threshold of 75 % for the employment rate, and even the zone just below, can be considered as a good approximation of where the labor market becomes particularly tight, and where there is no more, or little and uneasily accessible "unused labor capacity".

Figure 27:



Considering the PACs, Figure 28 shows how their employment rate would change in case 1°) the employment was to remain at its 2000 level, 2°) in case employment was to grow by 1 % a year, and 3°) in case the employment was to grow by 2 % a year. The scenario 0 % tells simply what the demographic effect on the employment rate precisely is: with no change in the numerator, any change of the ratio is commanded by the denominator. The fact is that, because of the lack of sufficient demographic inflow or because simple demographic depression, only three countries in Figure

28 would be able to only afford a 1 % p.a. growth of employment over the next two decades: Poland, Slovakia and Cyprus – besides Turkey, that would reach, with a 2 % p.a. growth of employment, an employment rate hardly above 50 % in 2020. For all others, 1 % p.a. in employment growth would not be demographically affordable up to the mid-2010s – except maybe in Lithuania and Bulgaria.

Table 9: Estimate of the Unused Labor capacity, 2000-2020

(In millions persons, by difference between a maximum employment of 75 % and the projected employment level, depending on the scenario

	2000	2010-Scen1%	2010-Scen2%	2020-Scen1%
EU15	30,0	17,8	<0	<0
BG	1,3	0,7	0,4	<0
CZ	0,7	0,3	<0	<0
EE	0,1	0,01	<0	<0
HU	1,3	0,8	0,4	<0
LT	0,4	0,3	0,1	<0
LV	0,3	0,2	0,1	<0
PL	5,0	5,1	3,5	1,9
RO	1,6	0,8	<0	<0
SI	0,2	0,1	<0	<0
SK	0,7	0,7	0,4	0,3
Pac10	11,7	8,8	4,1	<0
CY	0,0	0,04	0,01	0,01
TR	12	16	14	19

* Scenario 0% : constant employment level
Scenario 1 % : 1 % p.a. growth in employment
Scenario 2 % : 2 % p.a. growth in employment

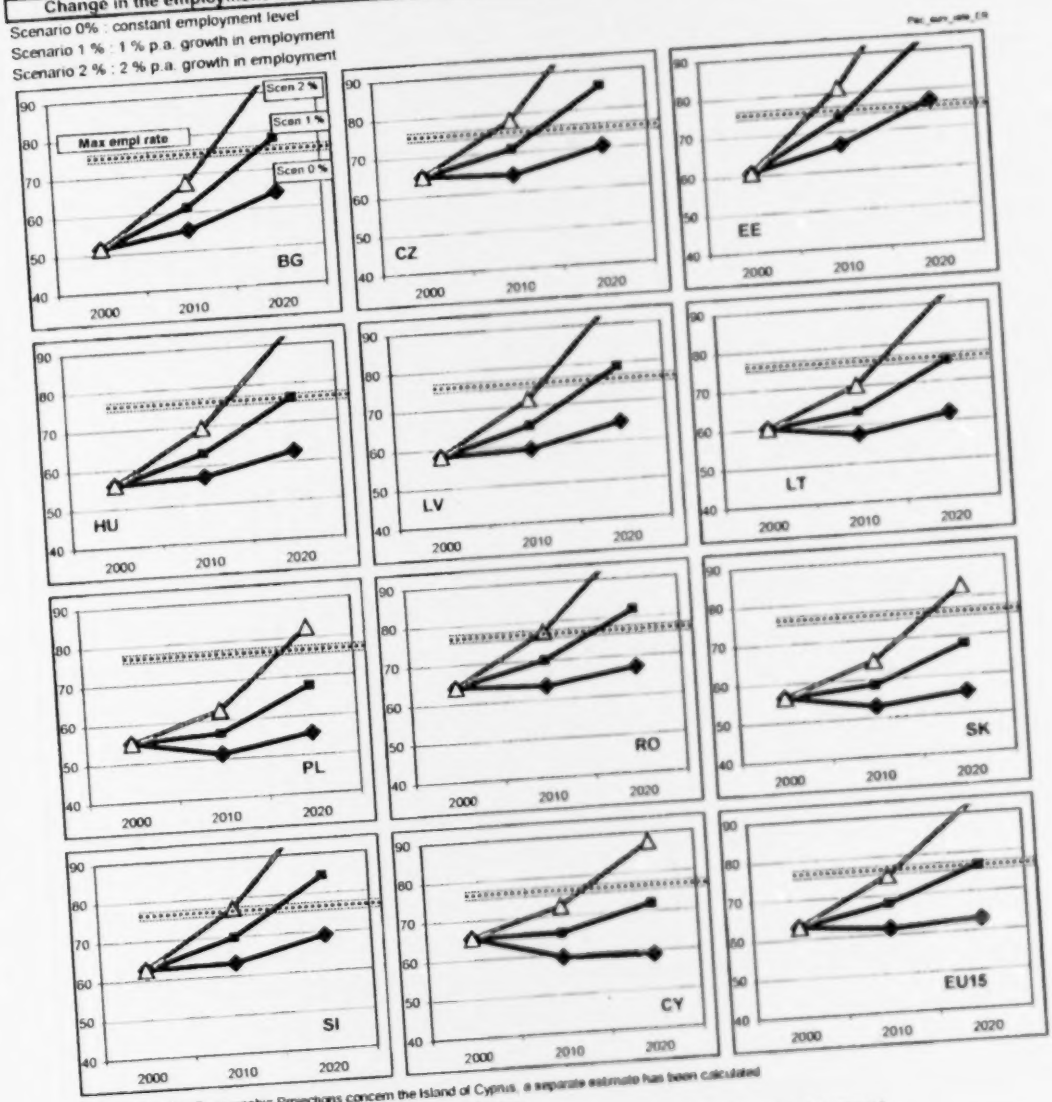
In terms of unused labor capacity that could be mobilised, Table 9 suggests where it could be found: in the scenario of 1 % p.a. in employment growth, by 2010, Poland would concentrate close to 6/10th of the reserves, with 5 million people. Romania, Hungary, Bulgaria and Slovakia would offer an "unused labor capacity" that would, under the same hypothesis, be in each case close to 0.75 million people. The Czech Republic would have hardly any reserve by then, nor Slovenia, and would be close to full employment.

This progressive accession to a situation characterised by "human resource as the scarce factor", as in EU15, is adding the strongest possible argument to a long term strategy that would organise high productivity increases, as employment growth by itself will in no way be enough to ensure economic growth. It could be argued that Poland and Slovakia, not to mention Turkey, have still enough human resources to choose "low skill / low wage" strategies for some time, building their competitive position on labor intensive specialisations. But the gradient of the curves in Figure 28 suggest that this would make an ever narrowing basis for economic growth in the 2020s, if at least employment growth is not too strong in the 2010s. For all other countries, the need for policies aiming at the qualitative - i.e. educational and organisational - improvement of the labor force will be the main drive of economic growth well before 2020.

Figure 28:

Change in the employment rate (15-64 age group) according to 3 scenarios of employment growth, 2000-2020

Scenario 0% : constant employment level
Scenario 1 % : 1 % p.a. growth in employment
Scenario 2 % : 2 % p.a. growth in employment



Note : As the UNO Demographic Projections concern the Island of Cyprus, a separate estimate has been calculated for the Working age population in 2010 and 2020 for the Republic of Cyprus

Source of data : *Eurostat LFS 2000, UNO Worl Pop. Proj. (Medium variant and Eurostat 2000 Demogr. Projections (Baseline scenario)*

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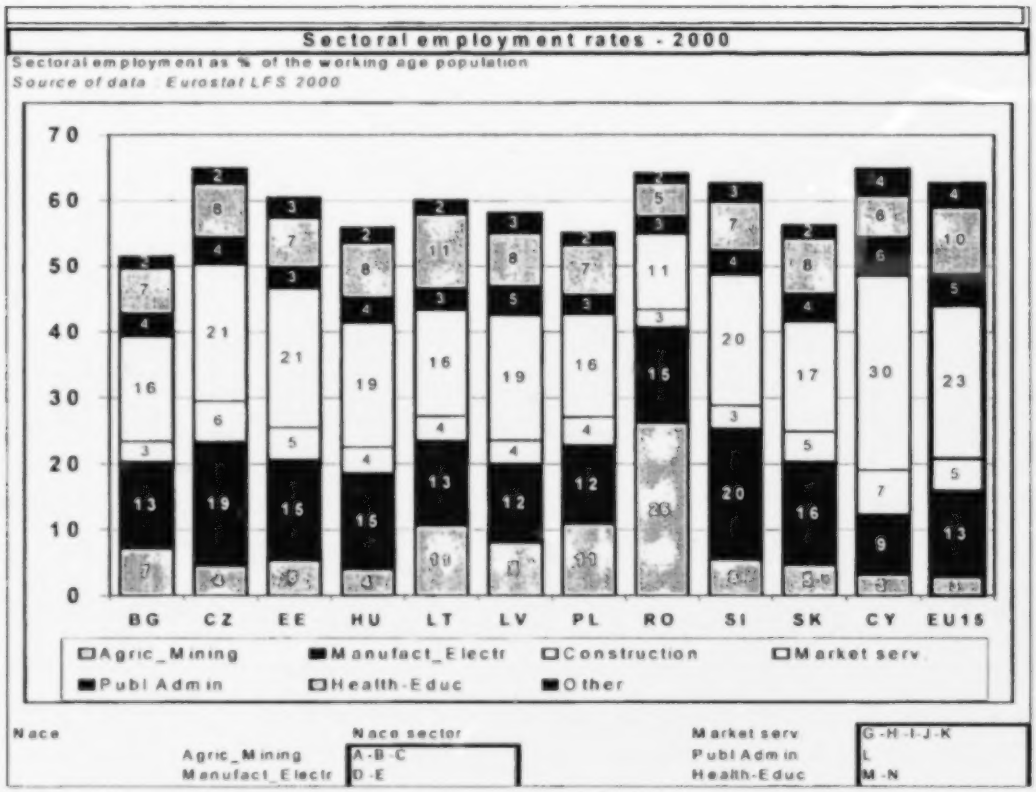
D.3.3 Links with sectoral shifts

Figure 29:



These "hidden reserves" should be further investigated in sectoral under-employment. On one hand, industrial sectors as a whole can be considered to have discharged by now a good deal of their under-employed staff, bringing the share of industry in total employment closer to EU15 standards. The high shares of industrial employment that we have, close to of above 40 %, in all but the capital regions of the Czech and Slovak Republic, in Polish Slaskie, in Slovenia and western Hungary, can be considered as mostly similar to what one can observe in industrial regions of northern Italy or southern Germany. Even if the levels of industrial employment were to shift progressively downwards, and partially through externalisation to the service sector of non-core industrial activities, the further industrial reorganisation might have to re-allocate the workforce between industrial sectors without being, on the whole in a situation, at a ten-year time horizon, of strong overall labor redundancies. But there is nevertheless a good deal of uncertainty in this, internal and external, and particularly for the Baltic States, Bulgaria and Romania[79].

Services are known to offer further opportunities of growth: Figure 29 suggests how and where, compared to EU15, they might increase further in market services, in health and education, and in "other services" that are widening the social mediations.

[79] See A. Tübke, Sources of Value-Creation in the Enlargement Countries, IPTS Report Vol58: October 2001, www.jrc.es/iptsreport.

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The main problem lies of course, in first order, with the agricultural sector, where PACs should be slowly converging towards lower shares of agricultural employment, acting as a shelter in times of economic reorganisation. If we considered, for example, that the agricultural employment aged 15-64 in the PAC10, was to go down by one third over the next decade, then this would make theoretically available for re-allocation into other sectors close to 2.5 millions additional people: 1.3 million in Romania, 0.8 million in Poland, close to 0.1 million in Lithuania and Bulgaria. This additional workforce should then be added to the unused labor –or "mis-used" labor – that could feed further employment growth beyond the theoretical limitations dictated by demography.

A "weak indicator" of the reallocation of labor is given by the "year in which person started working in current employment" in the LFS 2000, where only six countries show an answer. Considering the 45-54 age group, Cyprus and Slovenia show the highest shares of people having been in their current job before 1991: respectively 62 and 69 %. Poland is close to this: 60 %. Hungary shows 52 %, Lithuania 41 and Estonia 33 %. It suggests at least that the turmoil in job distribution has been quite uneven depending on the countries.

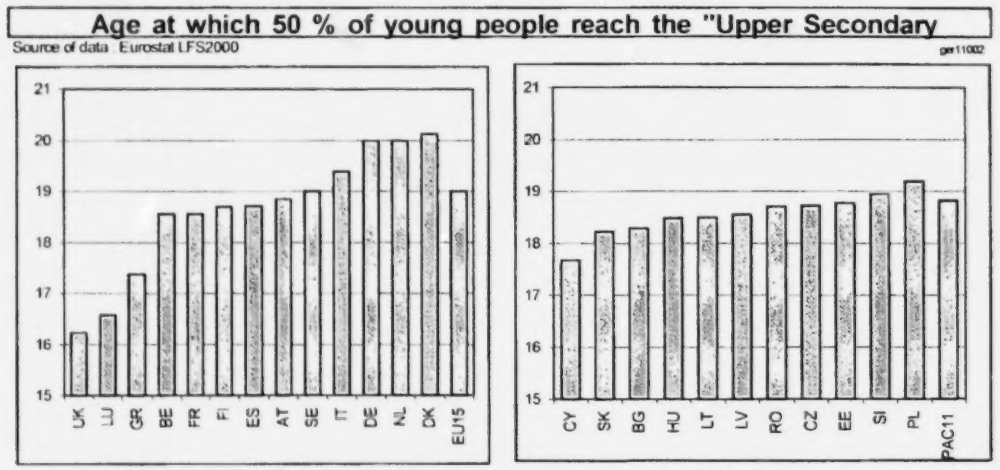
Another indicator that illustrates some buffering capacity in labor reallocation is the existence of a second job, where data are available for all PAC10 but Romania and for Cyprus. It lies for these 10 countries at an average of 6 % of men (15-64) employed having a second job, and at 5 % for women, against respectively 3.3% and 3.6 % in EU15. It is peaking for men in Poland at 10 % (12 % in the age group 35-44).

D.4 Educational levels and labor supply

D.4.1 Educational levels (ISCED into Low, Medium and High)

Attempts to measure qualitative characteristics of the human resource reveal an uneasy task. The most commonly used ISCED (International standard classification of education) allows conventionally to group the educational achievements into three levels: LOW, or ISCED 0-2, or less than Upper Secondary level; MEDIUM, or ISCED 3, or Upper Secondary Level; and HIGH, or ISCED 5-7, or Tertiary, that is supposed to add two successful years after Upper Secondary Level. It relies therefore on the accuracy of the pivot level, that is Upper Secondary. And this is where the first part of the problem lies.
Figure 30 shows the average age at which young people from the different countries reach this Upper Secondary Level. Within EU15, around an average of 19, we find at one extreme 16.2 years in UK, and at the other 20 or so, in Germany, the Netherlands and Denmark: the span is 3.9 years between UK and Denmark. Should we then accept that the same certification reached by 50 % of young people either at the age of 16.2 or at the age of 20.1 covers the same qualificational levels, conducting to similar levels of employability?

Figure 30:



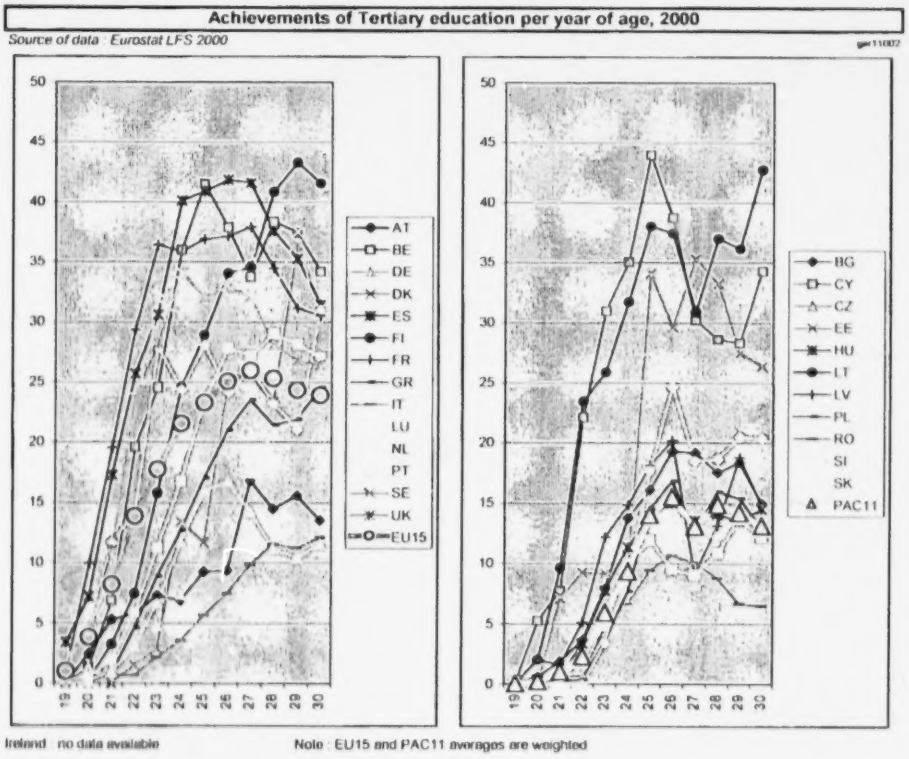
Note : No data availability for Ireland. Portuguese young people do not reach the threshold of 50 %.

And even if we ignored the cases of UK, Luxembourg and even Greece, should we then accept that a difference of 1.5 years between Belgium and France on one hand and Denmark, Germany and the Netherlands is making no difference in terms of employability at this critical age of entering some kind of adulthood. Or should we rather remember that "many jobs which are performed by graduates in the UK appear to be filled by employees with intermediate [...] skills in other countries, particularly Germany and the Netherlands", according to H. Steedman[80]. But at least the PAC10 show more homogeneity in the threshold age: it varies between 18.2 year in Slovakia and 19.2 in Poland - not to mention Cyprus where it lies at 17.7. Here again, if we consider that any year of additional schooling is just susceptible of having any effect on the employability, then this one-year difference should also.

To some extent, similar questions should be answered for the Tertiary level. Figure 31 is portraying the achievements per year of age, and it shows quite different profiles. A complete heterogeneity among the EU Member States suggests strong differences as for low vs higher achievements within the Tertiary educational system: in the Belgian or French cases, a wide scope of study lengths, that make the curve of tertiary achievements climb steeply at an early age, relates to a diversified educational offer – and things appear similar in Lithuania and Cyprus. In the Italian case, on the contrary, a take-off that is late and slow should is related to a lack in the low and medium-level tertiary system. For most PAC10 countries, the profile and the calendar is closer to the Italian model, or better to the Australian model. And in both EU and PAC10, the fact that the achievements are lower on average in the late twenties than they are somewhere in the mid-twenties suggests that a global progression is under way. But here again, the hypothesis that the return in terms of employability of such different profiles would be equivalent is of a rather weak kind.

[80] C. LLOYD et H. STEEDMAN, Intermediate Level Skills – How are they changing ?, National Skills Task Force Research Paper 4, September 1999, §84, available at www.dfee.gov.uk/skillsforce .

Figure 31:



The second part of the problem, that is already embedded in the quotation from H. Steedman is that the collective dimension is not less important than the individual dimension: the organisational side of the work process prevails on the abilities of individual worker endowed with some "human capital" – see ***Box*** on "Human capital." It is even more difficult to scale organisational forms than to specify qualificational properties of the workers, that can only by specified in the frame of the organisational forms. Therefore, the educational level of the working age population is a stylised fact corresponding to an acceptable bet: that "higher" education just opens the range of possible adaptative behaviors, widening the capacity to integrate complex sets and flows of information, speeding up the acquisition of know-how and increasing the efficiency of cooperation. This is of course an approach that is more constructivist than "adequationist": educational attainments deploy best when and where the management can improve the trade-off between authoritative - rather than authoritarian – injunctions and co-operation based on responsible autonomy. Therefore, no scaling of the educational levels in the PACs, compared to the west, should be taken for granted if it ignores that the main problem lies with the management models that make more or less educated people co-operate.

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The seven signs of "human capital"

The theory of human capital is currently being referred to the works of J. Mince, G. Becker and Th. W. Schultz, that were published from the late 1950s onwards. It aimed primarily at a better integration of the qualities of human resources in the analysis of the respective roles of physical capital and labor in the production process. Persistently submitted to criticisms, this academic approach has developed along two lines. One, that can be called the reductionist approach and to which the name of G. Becker should be related, was searching further how to bring any behavior of any agent, beyond the educational investment that each might do, back to a teleological rational choice, inclusively marriage, criminality and political attitudes, with some quantifiable reward determining the ex ante trade-offs. The other, that could be called the "investing in public education approach" was policy oriented, at times where physical capital was being questioned as the first determinant factor of production. This approach, where for example Th. W. Schultz was more involved, inspired also development policies, inclusively on behalf of the Worldbank[81].

Because the PACs are very concerned by the expertise on educational issues, it is useful to remember what main criticisms were or could be addressed to the theory of "human capital".

1°) On logical grounds, R. Solow and K. Arrow have been pointing to the fact that the term "capital" is just not relevant when applied to the analysis of human behavior. "Capital" was historically designed to analyse the allocation of financial means at the level of enterprise or at a macro-economic level. No "analogical distortion" (Solow) or "metaphorical use" (Arrow) is acceptable. Education is just not "capital", even if it is a personal asset. Analogical thinking is accepted in no hard science, and weakens the social sciences.

2°) Pleading that the individual is maximising its reward when "deciding" to study further has been considered as typical of "methodological individualism", where society would only be a summing up of individuals, that just ignore organisational constraint. This individual sovereignty is pointed at as an artefact that is denying any content to history or to society, and any validity to sociology or anthropology.

3°) If the expression "human capital" comes to the ears of any trade-unionist as an offence to the dignity of the workers, using it is not good practise for the social and political dialogue, and not adding to economic efficiency. This can be named the courtesy argument.

4°) The reductionist analysis in terms of "human capital" takes for granted that "education" can be considered as an "in se" independently of historical conditions. It can be counter-argued that any form of education will necessarily depend on the social readiness to either build it as an distinct activity, confined in schools with some rituals around it, or to have it "applied", on site, to specific activities as for example in the German dual system. It is then assumed that it has necessarily to be implemented by a detailed certification system, as was typical of the golden years of taylo-fordism instead of letting the recognition of qualifications work in a more informal way, with little social demand for certification, like in Italy. The present battles around the certification of knowledge and know-how drawn from experience in France ("validation des acquis de l'expérience") give a rich example of how the ministry of education and the corps of teaching professionals might be willing or not to give way to on-site or local experimentation – where some basic conditions of the knowledge based society are being redefined.

5°) It may be argued against the concept of "human capital" that the conditions of measurability are not met – and the Figure 30 above is adding to the argument. If the possibility of measuring the "edu-

[81] For a more detailed bibliography, see G. Coomans (dir), Regional Labour Force Differences among women aged 25-54 within the EU, 1993-97, Contrat European Commission DG XVI, ERDF 98/00/27/173, 1999.

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cational achievement" against a standard scale is to be reported the scale of the rewards, then the whole approach is becoming pleonastic: the individual would have, in this frame of individual rational behavior, to proceed by trial and error before he can relate his investment to anything. It assumes also that the performance or productivity of the individual, endowed with some "human capital" can be measured, dismissing as well A. Smith's analysis of the division of labor and any non-additive specification of the team work principle. In this also, the human capital is only typical of taylo-fordism that was staging a disciplinary pattern where indeed the systemic regulation was concentrating on individual performance.

6º) The engineer of the industrial golden industrial age was taught and accustomed to consider that with some quantity of given material and some quantity of given human resource he could build some efficiency, adapting means and needs. As Lewis Mumford, among many others, has been repeating, there is no technical system that is from its very conception a social system, including a system of representations, some culture of power, some conception of discipline vs participative co-operation, etc. Then there is no such thing as any "stock of qualifications" that would be an input as an instrument separated from other instruments. In other words, basic social science always started from the assumption that the organisational side prevails, from the conception up to the end result, upon the simple piling up of inputs – which the good engineer always accepted as obvious. It is not less obvious that if the "stock of human capital" in any PAC was declared to be deficient, the task would not be to conclude that the "human capital" should be improved, but to put the organisation under audit. And this implies as well the monitoring of education and on-site training in its forms and extent.

7º) The main criticism to the "theory of human capital" could be that it is typical of a patrimonial approach that may have had some relevancy in past times but that is becoming more and more irrelevant when the challenges are dictated by the generalisation of ICT and the emergence of the knowledge-based society. It is still considering the labor process in terms of adequacy of people that should be socially marked by some social certificate to some abstract job profile instead of considering that the knowledge based society means by definition that qualification are to be constructed and reconstructed along the lifecycle. It was coherent, to some extent, with the block-structure life cycle and the flat career, but not relevant when the principles of responsible autonomy and of the learning organisation are based on the relativity of any *ex ante* adequacy. It is ignoring the organisational foundations of the advanced forms of competitiveness. It is therefore confining prescriptions and recommendations to strategies that end up in sub-optimal utilisation of ICTs, low economic efficiency and backwardness. And it is not in line with the demographic limitations that force the European countries to switch progressively to approaches of Labor that need to be qualitative instead of quantitative.

After these precautionary remarks, educational levels appear, in most PACs, as the achievements that bring them closest to EU15 standards. Figure 32 portrays the overall situation on educational levels, considering the population aged 25-64.

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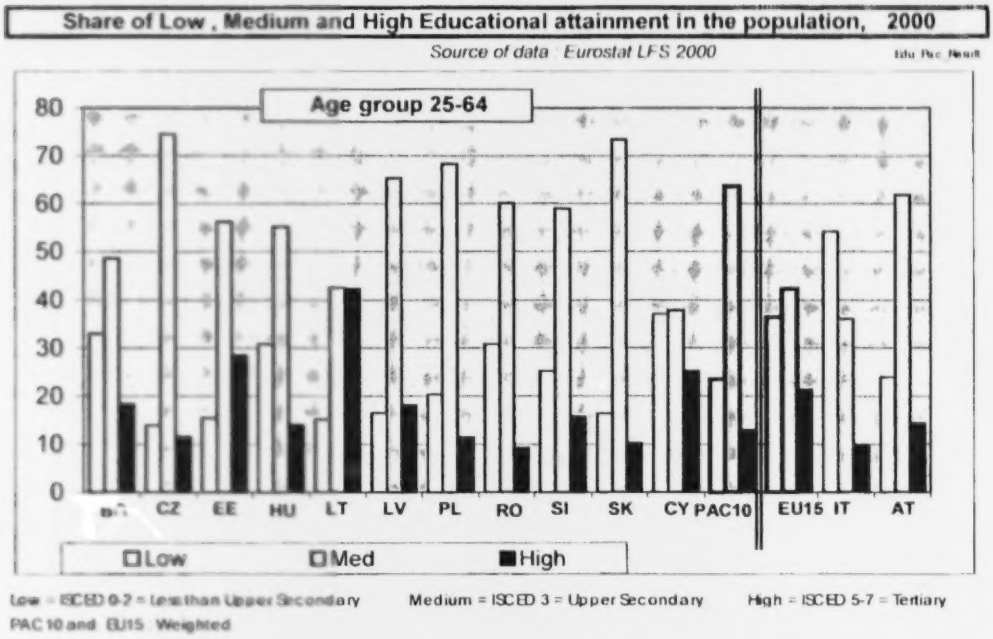
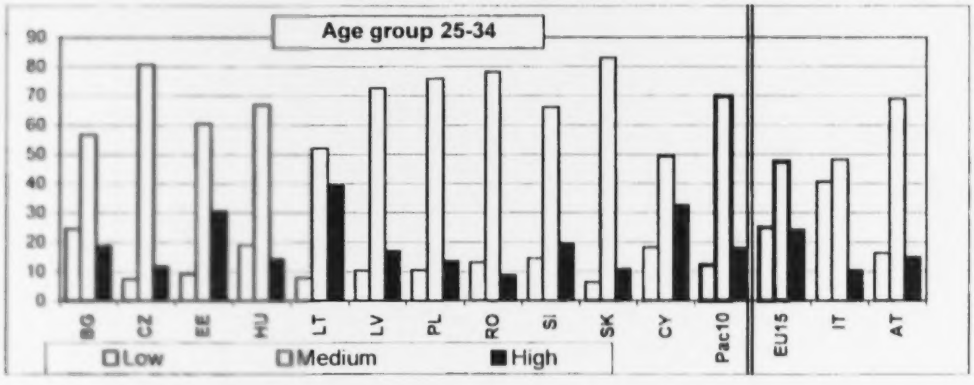
Figure 32:



The situation is clearly characterised, compared to EU15, by higher shares of Medium level, with lower shares of Low and High levels. Comparing with the performances of the 15 Member States, the PAC10 have close to the best position for Medium, and they would rank fifth in the top-down list of shares of High education, and sixth in the bottom-up list of shares of Low education. On the whole, they should be compared not to Italy or Portugal, that are in less favorable positions, but to Austria. And this should seemingly be related to globally strong positions in technical education rather than general education.

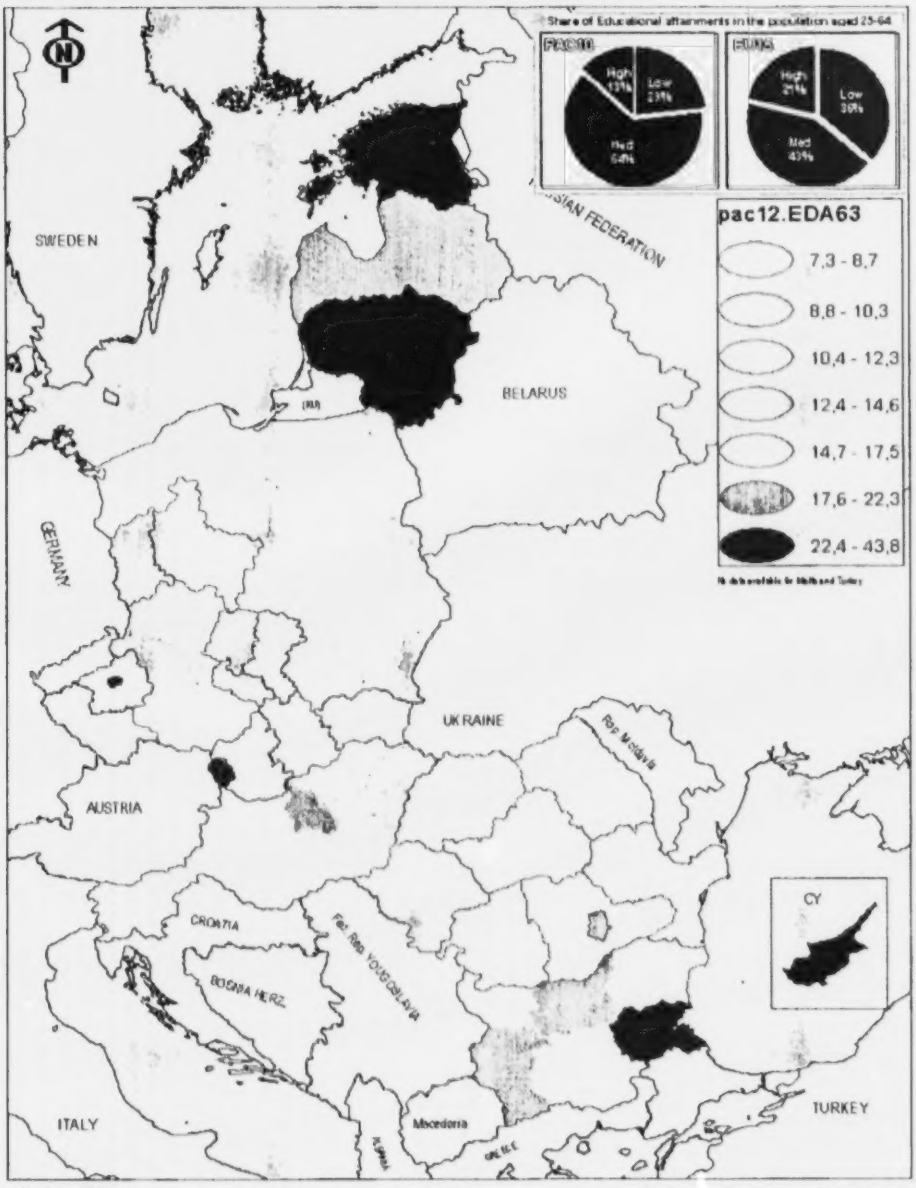
Figure 32b shows the same distribution for the younger age group, 25-34, for which the educational attainment can be supposed to be completed.



Compared to the 25-64 age group, it shows that little progression was obtained on the High side, but that a further decline of Low level allowed for an increasing share in Medium level. The sharp decline in the share of Low appears everywhere, and is the sharpest in Cyprus, Romania and Slovenia. This emphasises two points. First, the share achieved for Medium level can act as a favorable condition to develop towards more tertiary level. The young labor force available for low skill/low wage activities is declining most, and applying declining shares on declining numbers of young people will make the low qualified labor an ever scarcer resource over the next decades.

Considering the different countries, Lithuania stands out with very high shares of "High level" and it is doing here better than the top regions of EU like Brussels or Stockholm, with a GDP(PPS) per capita that lies only at 6600, ranking 7th among PAC10. It must be remembered that the profile of educational achievements per year of age in Lithuania (as in Figure 31) shows that Lithuania is the only country in PAC10 to show a continuous progression of tertiary achievements after the Upper secondary, that is typical of a diversified tertiary offer, covering short and long tertiary education. Estonia and Latvia also perform favorable against EU standards. At the other end, Romania shows a weak mix of educational levels. In between, Hungary and Bulgaria are rather close to the EU15 average. Ranked by GDP per capita (PPS) in 2000, Slovenia (16.100), The Czech Republic (13.200), Hungary (11.700) and Slovakia (10.800) show intermediate situations: but their relative wealth does as little to confirm any automatic link with educational levels as Italy does.

Map 1 :
Share of Tertiary attainments in the population aged 25-64
Year 2000



Handling : ISMEA

Source of data : Eurostat LFS 2000

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The example of Poland, where the most agricultural regions are clearly distinct from others, suggests a strong link between this share of agriculture and the share of Low educational level in the population aged 25-64, as illustrated in *Figure 33* and Map1.

Figure 33:

Share of agriculture in employment and share of LOW educat. level in the population (25-64) by region

(54 PAC10 regions + Cyprus)

urce of data Eurostat LFS 2000

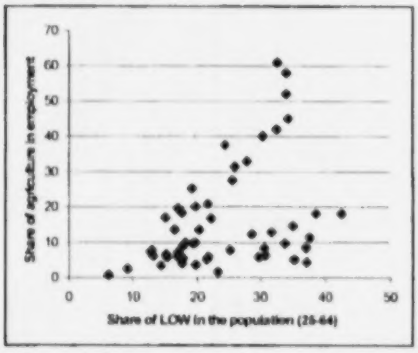


Table 10: The capital regions
Their share in the national population and in number of people with High educational

(1999-2000) Edu_Pac Resu

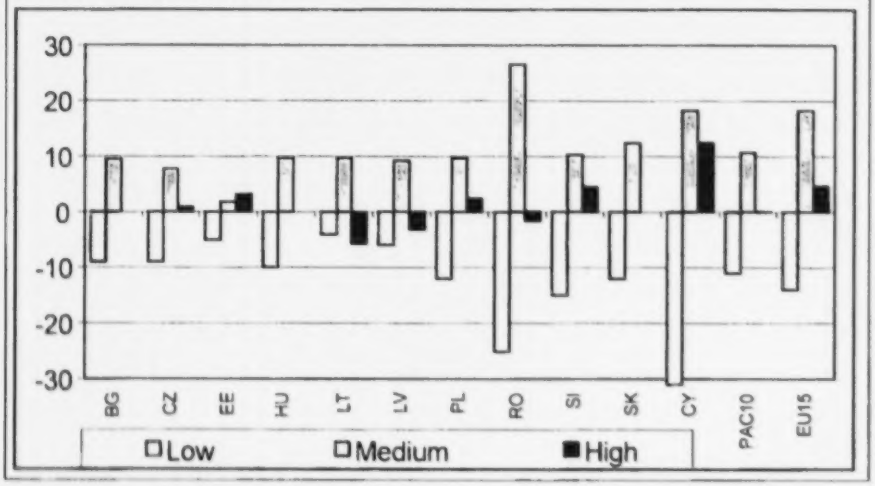
Region	*In High educ*	*In pop*
BG06(Sophia)	37,3	14,7
CZ01(Prague)	25,5	11,6
HU01(Budapest)	42,9	28,3
PL07(Warsawa)	16,6	13,1
RO08(Bucharest)	23,1	10,2
SK01(Bratislava)	30,8	11,4

The Romanian regions – all predominantly agricultural except Bucharest – confirm this. And so do Bulgarian regions, although on a much lower scale in the share of agricultural employment. At the other end, the regions with the capital concentrate much higher shares of the people with "High" educational level than their shares in the total population, as shown by ***Table 10***. Strong distortions appear everywhere, except Poland where the region containing Warsawa is much larger.

Figure 34:

Difference in the shares of Low, Medium and High educational levels between the age group 45-54 and the age group 25-34 in the year 2000

Source of data : Eurostat LFS 2000



The second point that deserves attention is the evolution from one generation to the following generation. The indicator used in Figure 34 compares the shares of High level and of Medium level between two 10-year age group: the 45-54 age group – those who were aged 20 around 1970 – and the 25-34 age group – those who were aged 20 around 1990. It gives the generational progression on educational achievements. This progression appears, on the whole, very weak or even negative for the High level: only Slovenia shows here a progression similar to EU15, besides Cyprus that is doing much better. It appears close to zero for Bulgaria, the Czech Republic, Hungary, Slovakia. But the progression on the Medium level is significant and relatively homogeneous, accounting, for the PAC10 countries, to 11 points of %, against 18 on EU 15 average. Romania has here an outstanding record, with + 26 points. And on the lower side of the scale, the regression in the share of Low educational level is also very clear: -11 points for PAC10, against –14 points for EU15, and less 31 % for Cyprus. The Romanian performance in reducing by 25 points the share of Low between the two generations, that is symmetric to their progression of 26 points at Medium level, compares favorably with the best by far performance among the Member States of EU15, namely in Spain (respectively less 29 points and plus 18 points). And this is certainly a far-reaching achievement at medium/long term.

D.4.2 The gender catching up

The female part of the population is currently doing better than males in terms of educational attainments in most Member States, at least at the global level of their distribution in Low, Medium and High educational attainments - things being less clear when looking inside the tertiary attainments. Germany, Austria and the Netherlands are lagging somewhat behind, but the female progression has been impressive in the Mediterranean Member States, in France and Belgium. Similarly in the PACs for which we have LFS results, females are catching up on males in most countries. Figure 35 shows the distribution per educational level and gender. Females aged 25-64, in PAC10, are now doing obviously better than their mates in EU15: similar shares at High level, around 20 %, but significantly higher shares at Medium level, with, complementarily, lower shares at Low level. And this is certainly true in the Baltic States and Bulgaria, with Slovenia and Cyprus coming close. Figure 36 illustrates how this female catching up is due to the youngest generations.

Figure 35:

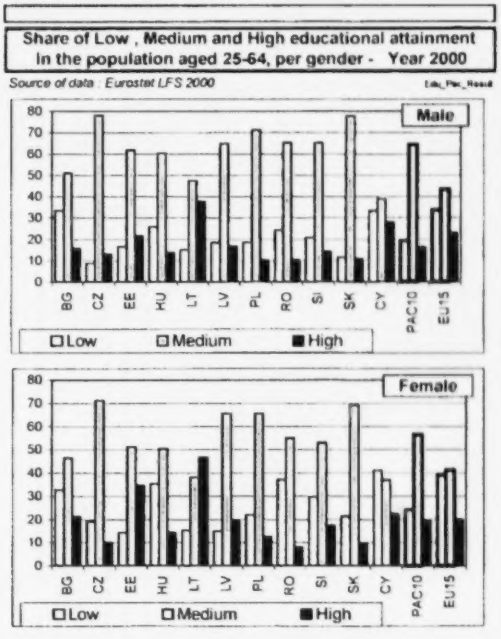
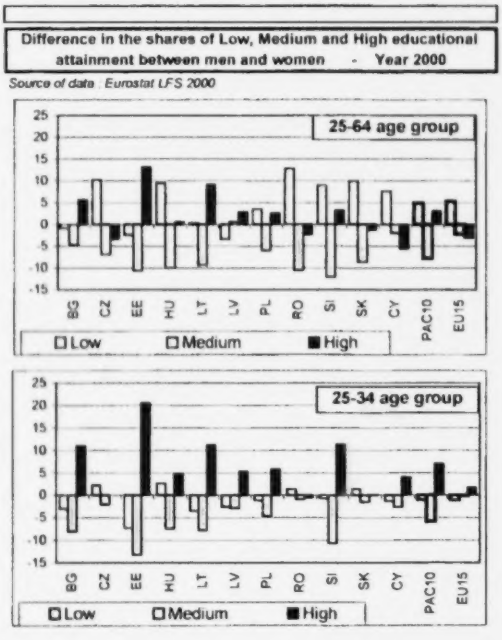
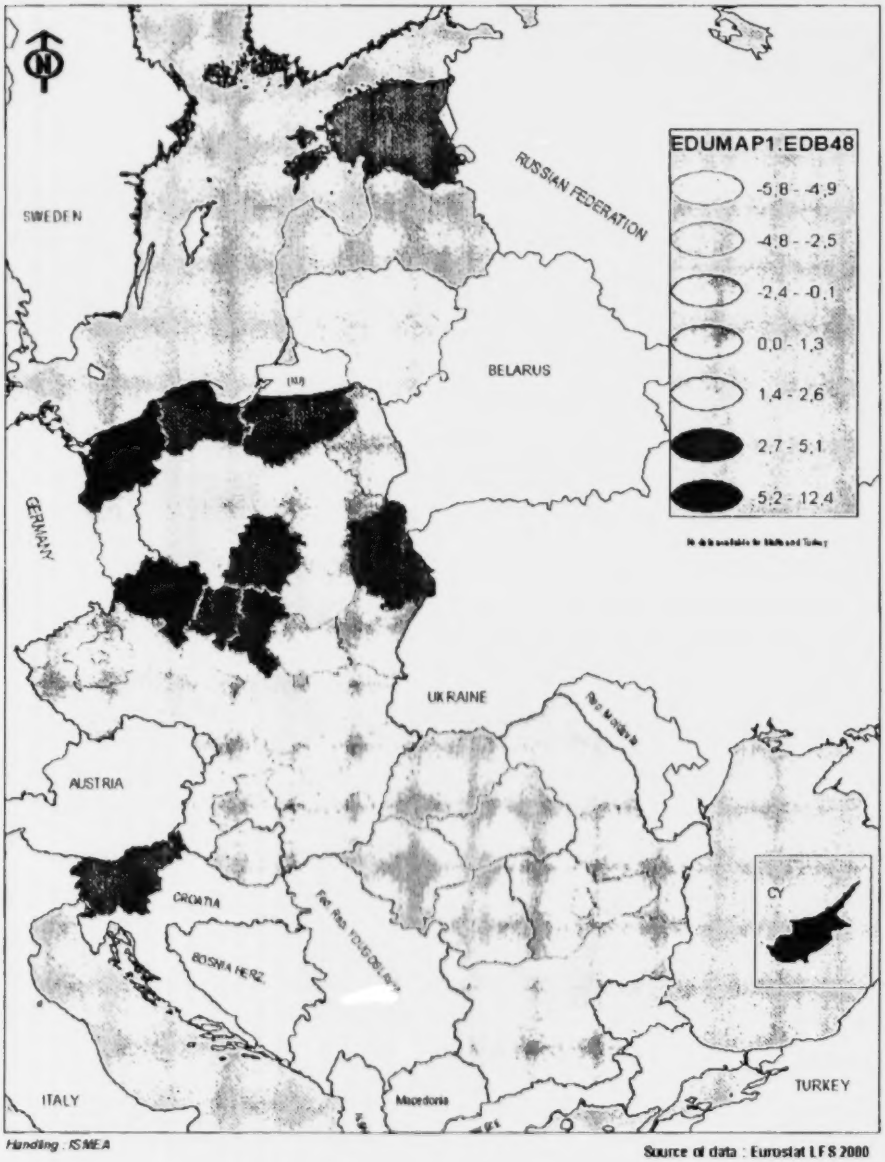

Share of Low , Medium and High educational attainment in the population aged 25-64, per gender - Year 2000
Source of data : Eurostat LFS 2000
Male
Female
BG CZ EE HU LT LV PL RO SI SK CY PAC10 EU15
Low
Medium
High

Figure 36:


Difference in the shares of Low, Medium and High educational attainment between men and women - Year 2000
Source of data : Eurostat LFS 2000
25-64 age group
25-34 age group
BG CZ EE HU LT LV PL RO SI SK CY PAC10 EU15
Low
Medium
High

Map 2 :
Progression in Tertiary Education (Year 2000)

Difference in the share of tertiary attainments between the age group 25-34 and the age group 45-54 (Male + Female



Handling : ISMEA

Source of data : Eurostat LFS 2000

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Considering the 25-64 age group, it must be noted that females show a more favorable distribution compared to males only in Bulgaria and the Baltic States. But considering the youngest age group, i.e. the 25-34 age group, the gap in favor of women has not only been increased in these four countries, but it generalised to most others, and to a very significant extent in Slovenia. In Poland the female catching up is now complete, with already 17 % of women aged 25-34 at tertiary level, against 11 % of men (respectively 25 and 23 % in EU15). Only the Czech Republic and Romania show a simple parity for this age group.
When looking at the regional dimension of this female catching up, it must be said that it seems quite homogeneous. If there was a difference, the process of catching up seems rather more advanced, although at lower absolute levels, in the agricultural regions. But this also means that women are rather reducing the lagging behind of predominantly agricultural regions.

D.4.3 Educational levels and employability

Better education of the people is forwarding organisations with better human resources, that make a pre-condition, - historically a *necessary* condition but not a *sufficient* condition – for improved and more efficient organisational forms. From the individual point of view, very commonly, higher educational levels means less unemployment and better jobs with better wages. This is true not only within EU15, but also in the PACs, and even to a larger degree. Figure 37 shows also how the selectiveness of the labor market based on the educational attainment seems still stronger for women than it is for men. Romania shows a situation that is here similar to Portugal or to Spain: the high shares of Low educational level are limiting the selection that works between Low and Medium, but it makes it stronger between Medium and High – which we also observe in the case of Cyprus. This means that in these cases the return of educational attainment strongly appears only for the holders of the tertiary level.

Figure 37:

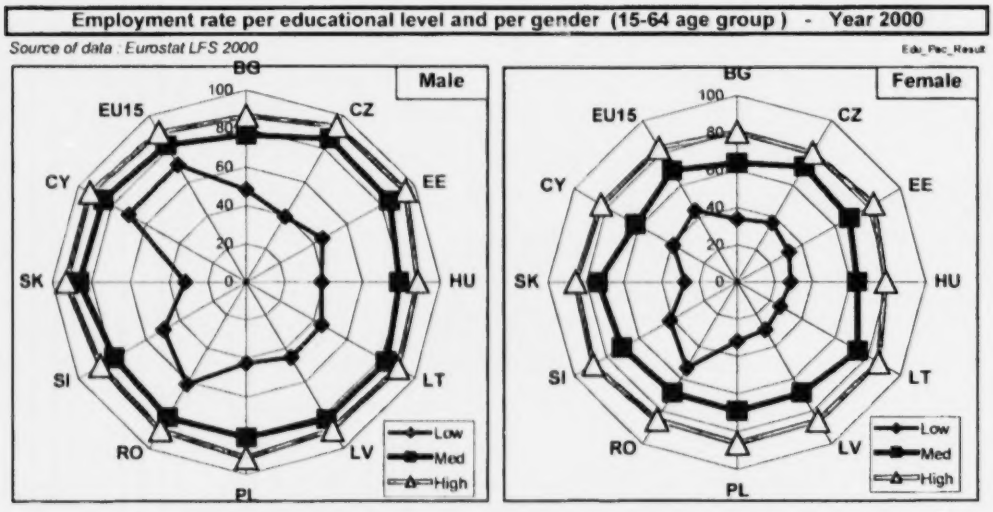


Figure 38:

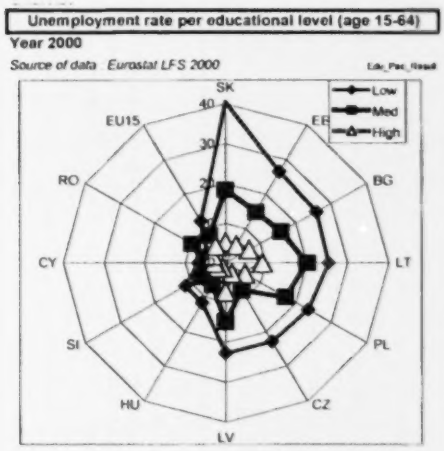


Figure 38 is adding, quite expectedly, another relation, that is becoming clearly apparent when opposing Romania to Slovakia: the strongest the selection on age, as in Slovakia or in the Czech Republic, the strongest by way of consequence becomes the burden of unemployment for the Low educated. It means that any progression of the educational level towards more Medium level achievements would pay a good return in terms of jobs. This still seems true to a significant extent in most other PACs, but to a much lesser extent in Romania, or even for males in Cyprus. On average, people make 15 % of the overall employment, but 25 % of the unemployed.

D.4.4 Age shift, educational shift and labor supply

In EU15, the aging workers that will be retiring over the next decade show still high shares of Low educational levels (47 % for the 55-64 group, in the year 2000), while the young incoming generation show much better achievements (25 % of Low level for the 25-34 age group). Considering given employment or activity rates per educational level, this will of course help to increase the labor supply, just as the catching up of women in terms of educational attainments has been one of the main factors that has allowed their increasing participation in the labor market. This combined age/educational shift has also contributed to sustain the growth of revenue, consumption, productivity and by the end the overall economic growth, and even more so where the progression on educational attainments had been strong, typically like in Spain or in France. And for the coming decade, the further progression of the educational levels will certainly continue to sustain both the qualified labor supply and the economic growth in most of EU15, and more especially in Spain, France, Greece and Portugal.

Figure 39[82] suggests that on the whole the improvement would only be more spectacular in the PAC10 than it is likely to be in EU15. The number of people aged 25-64 with Low educational attainments, that make already a lower share than in EU15, would decrease further by one third, compared to one fifth in EU15. Considering the starting point (as in Figure 32), this is certainly more impressive in Romania, or even in Bulgaria and Hungary, compared to the Baltic States. But it is impressive everywhere.

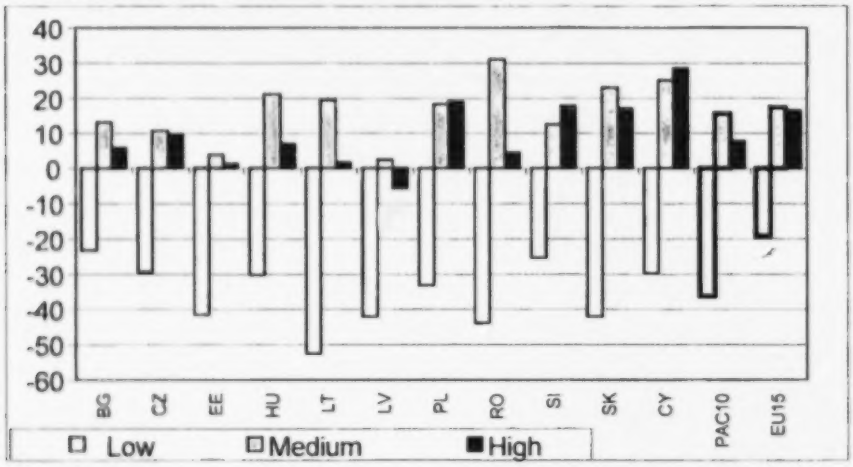
[82] The method adopted to make this estimate is the following : the shares of Low, Medium and High in 2000 in each 10-year age group is supposed constant when they become the next 10-year age group in 2010. For the 25-34 age group in 2010, the progress that had happened for the previous two age groups (comparing in 2000 the shares of the (25-34) to the (35-44) and the (34-44) to the (45-54)) was retropolated onto the 25-34 age group in 2010. As in fact little apparent progress is being observed in the 15-24 in 2000, inasmuch we can judge of a process of education that is not yet complete for this group, the method described above may be overstating to a limited degree the performance of the 25-34 age group in 2010. But this should not change the magnitude of the evolution shown in Figure 39 – and certainly not at all for EU15.

Figure 39:

Change over 2000-2010 in the number of people with Low, Medium and High educational attainments Age group (25-64)

(expressed in % change compared to their number in 2000)

Source of data : Eurostat LFS 2000



The further growth of the number and share of people with Medium Level, except in Estonia and Latvia, is also the more impressive that it involves countries where this share is starting from a high level in 2000. This confirms also that the situation of Romania might be significantly improving in the medium term.

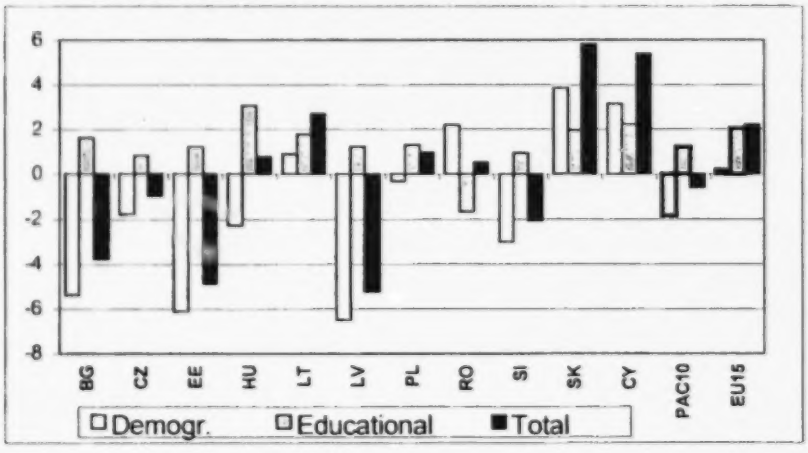
Last the number and share of people with High educational level: this is where the PAC10 continue lagging behind the EU15, where the progression should lie at close two times the progression in the PAC10: +16 % against + 8%. And for Cyprus, the progression should be even stronger than for EU15, being close to the fourth best performance among the 15 Member States.

Figure 40:

Educational and demographic effect on the labour force between 2000 and 2010

(expressed in % change to the 2000 Labour force 2000) Age group 15-64

Source of data : Eurostat LFS 2000



Remembering that higher educational rates involve also higher employment and/or activity rates, it can also be estimated what effect this positive educational shift will have on the global labor supply – and that might bring some correction to the demographic limitations. Figure 40 gives an estimate of both effects: demographic and educational, considering constant activity rates per gender, 10-year age group and educational level. Any other change in the labor force would then have to rely on changing behaviors – for example young women more willing, if the birth of the first child happens later than it did a decade ago as we have seen, to join the labor force earlier and on a more permanent basis. And of course all this should be considered as giving only global indications on trends rather than precise results, as we are here at the limit of statistical reliability and still doing "as if" statistical handling was reflecting a purely deterministic and "pre-quantics"reality.

Figure 40 shows that the educational shift within EU15 should increase the labor supply by something close to 2 % over the decade, beyond the strictly demographic shift that will be very close to neutrality. For the (unweighted) average of PAC10, the educational shift would recuperate more than half of the demographic decline, making a total effect that is close to neutrality. But the heterogeneity between countries is strong. For the three countries, Bulgaria, Estonia and Latvia, that show a demographic decrease of the labor of at least 5%, the recuperation due to a positive educational effect would be very partial, ending up in a clearly negative overall effect, between 4 and 5 %. Compensation would also be partial in the Czech Republic and Slovenia, with an overall effect that appears slightly negative. The educational shift would do better than compensate the demographic decrease in Hungary and Poland, allowing some residual growth of the labor force. Romania is the only case where some residual demographic growth would be almost nullified by the unfavorable educational shift. Slovakia, and also Cyprus, are the only cases where both educational and demographic effects contribute to a clear further growth of the labor force.

Figure 41 shows the same kind of projection, but limited to the aging workers group, i.e. aged 55-64, that is the fastest increasing group. It suggests that for EU15, this better educated generation in 2010, compared to those that were in the 55-64 age group in 2000, would cease to have its employment rates declining – which is a positive factor for the financing of the pension system. This illustrates in fact the far-reaching difference between the generation born in the pre-1945 period and those that were born after the war.

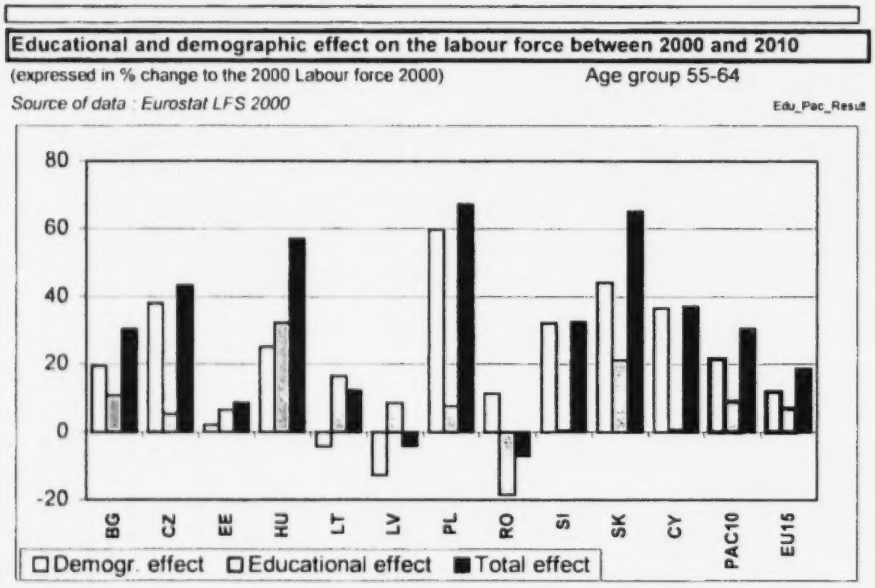
For the PACs, Figure 41 suggests that not only the demographic effect on the labor force aged 55-64 will be an increase by over one fifth, but that the educational shift might add close to another one tenth to it. Demography will add much more in Poland, Slovakia and the Czech Republic, and also in Cyprus. The educational effect will be strong in Hungary and Slovakia. The Baltic States will show little change. Romania should not find in any educational effect any facilitating factor for keeping aging workers in employment. Aging workers might be under strong pressure in Poland, with fast increasing numbers, but hardly any educational progress that would better protect them. Slovenia and also Cyprus show only significant demographic effects, with no educational improvement on this age group.

The question behind this is far reaching, if we remember how within EU15, over the last two decades, much of the adapting process of the labor market to the changing economic conditions has been regulated by way and at the cost of a dramatic drop in the employment rate of people above the age of 50. Early retirement became common policy, and it is only now, when facing prospects of overall or local labor shortages or only of tense labor market conditions aggravated by an increasing concern with the pension financing, that new targets have been set forward to reverse the past trends

– see the 50 % employment rate for people aged 55-64 set as a target at the Stockholm summit. In most EU15 Member States, early retirement schemes are now, or will be soon, loosing the incentives that had been inaugurated some years ago.

For the PACs, the frame behind this question is considerably aggravated by the abrupt character of the demographic depression in the last decade, that will produce its effects on the labor supply over the next two decades, with a dramatic reduction in the size of the young inflowing generation (see Figure 15). It should then be stated that the PAC will face soon, with a short time lag on EU15, the obligation of any aging society: ensuring the employment of aging workers, because not enough young incoming people can replace them. And incidentally, this is also what should be done to sustain the pension systems.

Figure 41:

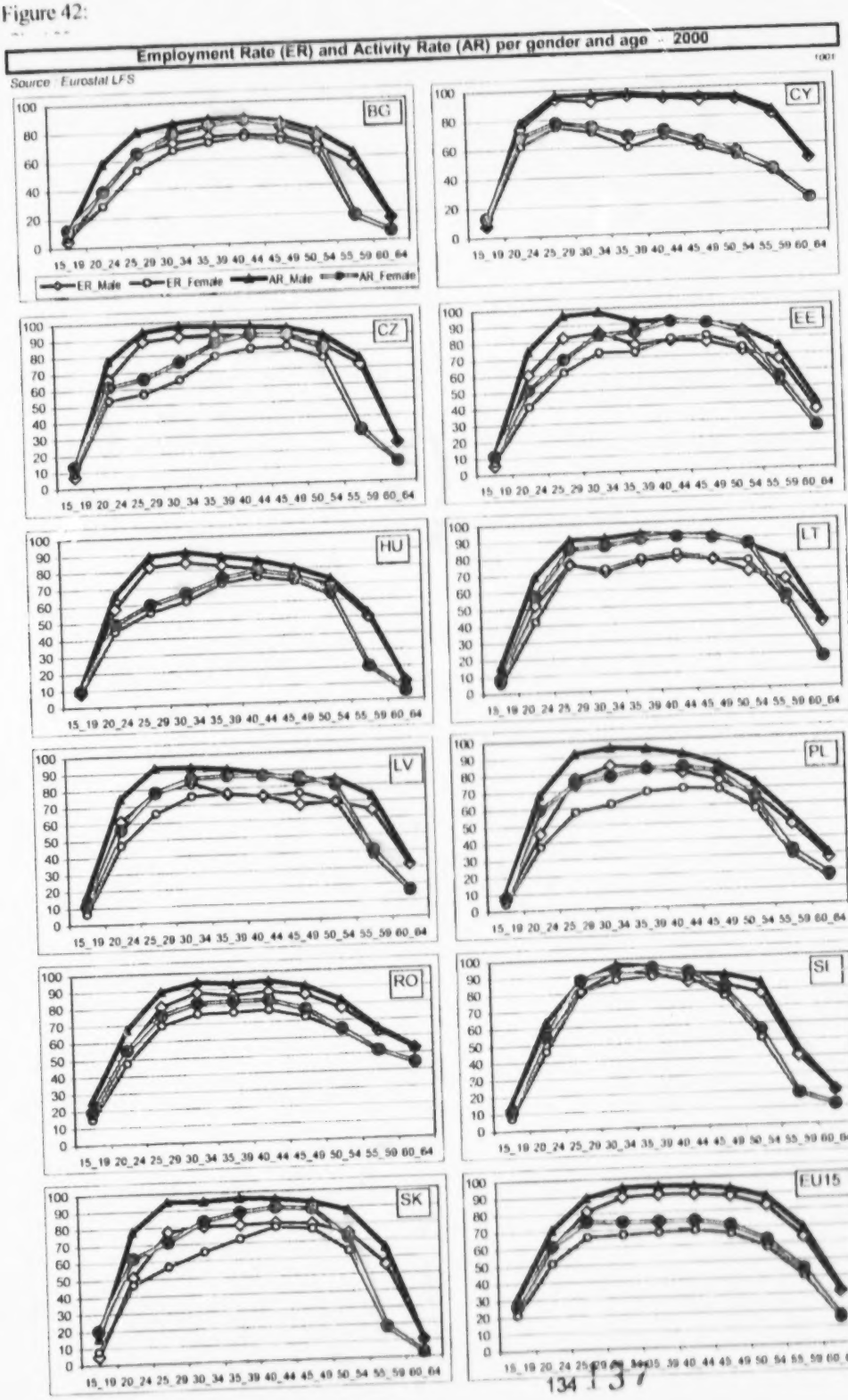


Looking at the present profiles of the employment and activity rates, as illustrated in Figure 42, the reserves of "unused labor capacity can be clearly identified. Looking at the young female employment rates in every PAC10 except Romania and Slovenia, significant growth can be envisaged. Under-employment of young males, say in their late twenties, appear clearly in Bulgaria, in the Baltic States, in Hungary, in Poland, in Romania and in Slovakia. But we need to remember that increasing the employment rate for the decreasing number of people in the young age group, whatever important, can bring only part of the solution.

For the mid-age males, growth potentials, when comparing the curves with EU15, the Czech Republic, Slovenia or Cyprus, are significant in all other countries. For the mid-age females, for which the PAC10 have shown higher activity rates than EU15 in the past, under-employment has developed, with the sole exception of Slovenia. For the aging workers, where the real increase in the number of people will be, Bulgaria, Hungary, Poland and Slovenia show low rates. And above the age of 60, we find only Lithuania and Estonia, besides the predominantly agricultural Romania and besides Cyprus, that show employment rates above the EU15 average, precisely where they were

most reduced over the last decades. But considering the increasing number involved, these age groups above 50 deserve the closest attention.

Figure 42:



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D.5 Main policy implications

Concerns about demography are commonly supposed to be relevant only in the long term. But this is not acceptable when a demographic depression, emerging abruptly, is changing thoroughly the main determinants of labor supply for the next two or three decades. This is what happened in every PAC10, while Cyprus, Malta and Turkey are still following slow trends that imply no urgency but a long term concern. For Cyprus and Malta, the demographic calendar suggest no other short term task than to anticipate the challenges that are typical of aging societies: ensuring the employability of people throughout their working life, of which the limit is given by the state of good health, involving people, on average, until close to their mid-sixties. As the aging society comes in combination with the knowledge-based society, the employability relies more and more on the capacity to keep up with the technological changes and the qualificational requirements that are sustaining the competitive position and the competitive potential. And for Turkey, the agenda will not show the same priorities. The recent Household Labor Force Survey is only feeding the conviction that, in a situation where the demographic situation is far from having come to maturity, the situation is still one of abundant, if not over-abundant labor supply. On the opposite, when concentrating on the PAC10, the priorities of post-transitional demographics appear exceptionally urgent, within an aging process that is being accelerated by the recent fertility collapse, that is not expected to simply recover over the next decade.

Looking here at the agenda at a 10 to 20-year horizon of time, the main policy implications lie in the following points: 1°) the policies related to the strategic trade off in the capital/labor substitution; 2°) the family policy as a condition of further demography and of further developments in the female labor supply, 3°) the question of improved integration, both quantitatively and qualitatively, of the decreasing number of inflowing young people, 4°) the question of a improved contribution of aging workers to economic growth and social welfare, and 5°) the emigration question.

1°) The demographic prospects related to the working age population and its distribution per age force to consider that any strategic choice that would rely on abundant labor supply and the development of low wage/low skill activities would not be realistic on a time horizon much beyond a decade. The fact is that within 10 to 15 years, with any employment growth that would be close or above to 1 % p.a., the PAC10 will precipitate a strong tightening of the labor market. In this situation, low qualified people might well continue to have low employability, with high unemployment rates. But there is hardly any doubt that labor-intensive activities characterised a high price sensitiveness, would be under high pressure. Such strategic choices cannot be encouraged, unless on a strictly transitional basis. Therefore, the building of the labor force needed by technologically advanced and high added-value activities requires priority. The long time scale of both educational and vocational policies, against the short time scale of the demography in the PAC10 – with the exceptionally fast decrease in the number of incoming youngsters -, involves that a first rank priority be given to innovative policies that would also prepare for the knowledge-based society, the participative management at all levels of production and the net economy. In the case of Bulgaria and Romania, the length of the transition to tight labor markets may well seem longer than for example in Poland. But the number of incoming youngsters is not decreasing less than in other PAC10. And this by itself implies a strong limitation, that is common to all. With high efforts on tertiary education, the number of young people aged 25 with a tertiary level might well be stabilised. But this would mean that people with lower or medium educational attainments would decrease more than average. Only Turkey, with a working age population that continues to increase steadily (+40 % in 2025 compared to 2000) and a low level of employment rate (below 50 % in 2000) shows wide reserves.

2°) The effect in terms of fertility of family support policies cannot be considered as clear. But in the coming decade, the ranking of concerns will be changing: besides the support given to fertility support, the main concern will be the following: what policies, henceforward, to adopt in order to, at the same time, help forming families and help the young women to participate in the labor market in times of global tightening of the labor supply? The policy consisting in regulating the labor supply through lower female participation would doubtlessly not only keep aside women with low qualificational attainments, but also, considering the catching up of female educational levels on men, women with medium to high qualificational levels that are needed to play their role in providing more and better economic growth. Any policy that would stick to the short term concern of regulating the labor supply downwards would reveal very costly at medium term, when the female potential in terms of qualification will be the more needed that the labor supply is both shrinking and aging fast, with uneasy replacement of the older generations by the younger generations. And therefore, any policies that would promote, with no delay, equal opportunities would reveal highly efficient, both in terms in terms of global economic efficiency and in terms of political sustainability. By all means, unless the present low fertility rates were accepted to remain well below the replacement level for a long period, equal opportunities and measures aimed at facilitating parenthood are becoming pre-conditions to allow any medium term economic growth and improvement in social welfare. That is certainly where the collective assumption of social and life-risks should improve the acceptance to bear risks at the level of the individual citizen. And any program of recovery should therefore integrate this new deal for family forming that is becoming at the same time a condition of overall economic development in the long term.

3°) The improved integration of the young incoming people will be eased by the quantitative evolution but it will need to be sustained qualitatively. Western Europe has known a phase, in the late eighties, where the prospects for young people was subjectively seen as gloomy, with reactions like the "no future" that was current also in universities, and which was reflecting some kind of social priority given to the bulk of the post-war baby boomers generation. The change ten years after, within EU15, seems to be driven also by their decreasing number, with youth unemployment rates that went down more than the average, and by an integration that was progressively eased. The next decade should be confirming that the young generation is becoming the new "gold mine" and a generation that society is paying court to. The demographic calendar in most PACs is likely to produce the same kind of reversed priority, turning it in favor of the young incoming generation. But this needs to be sustained with qualitative measures.

Ranking first comes the education policy, and lessons should be drawn from the diversity of situations within EU15, where no "best model" can be evoked. For the PACs, two starting points are striking: the high share of upper secondary education, and the low share of young in their early twenties who continue studying, most of them on a "long tertiary" scheme, with little return before the age of 23-24. This long and high step of staircase needs shortening and lowering. The priority should be placed in the diversification of the educational supply for short tertiary courses, on periods between some months and 2 years. The main other point is that this short tertiary priority should favor the professional and technical qualifications, and certainly in relation to ICTs. Developing the dual system, i.e. combining education and vocational training both in and out of the working environment, besides the advantage of producing adapted qualifications, has the disadvantage to rely on multilateral partnership, that are slow to set up. Therefore, the priority should lye on a large diversification and a wide territorial coverage of short tertiary schoolings, typically on ICTs basic knowledge or "computer literacy", that has the advantage of being at better reach of both collective organisation and state-supported private initiative. The question in debate should then be on how to and adjust an educational system that is at the heart of any possibility to leapfrog on the path leading to higher economic productivity and efficiency.

4°) High priority should be given to the question of the aging workers, whose number will be increasing fastest and that will be endowed with improved qualifications compared to their predecessors, even considering the present 45-54 age group compared to the present 55-64 age group. It appears urgent to launch the debate and improve the awareness on the "good practices" towards aging workers, in terms of no discrimination, adapting jobs, adapting behaviors. In phases of shrinking labor supply, discrimination is costly when it shades away the accumulated experience and the communicational abilities that are reported to be more developed amongst aging workers. Because setting up systems of re-skilling takes time, it is urgent to open the debate and improve the awareness. Combating age barriers in employment and promoting good practices must become a common concern[83]. It is here important not to remain trapped in a pejorative vision of aging workers, and to emphasise the advantages of accumulated experience. This is by all means becoming one of the conditions of economic growth and social welfare.

5°) Accepting, on behalf of most of the PAC10, to impose limitations on the emigration of people, that would by all means be young people in the majority of cases, is a low-cost concession at medium term. With a shrinking internal labor supply, those who would have emigrated, and who would have aggravated, whilst doing so, the fast aging of the workforce, would be missing internally at short notice, and certainly so if they were to emigrate on a non-transitional basis. From the point of view of the PAC10, the best trade-off would be in less emigration and more inward foreign investment from countries that would be facing labor shortages, as will be the case in most of Member States of the EU15. This global certainly needs refining when considering countries like Romania, that have a highly unfavorable sectoral mix that would take time to improve and a high emigration potential. But even in the case of Slovakia, that is to have some residual growth of its working age population, the arguments should take in account the fast decline in the number of young people joining the internal working age population. And similarly for Poland.

This means also that EU15, whether or not agreements were extended on issues related to immigration from the PAC10, should not rely except on a very short term basis on the additional labor supply that the PAC10 might forward, and certainly not when considering the young labor force. The best choice on behalf of EU15 Member States would also be to favor investments in the PAC10. Considering the demographic calendars in these PAC10, it would make little sense to make a choice based on prospects of abundant and low qualified labor that will soon no more exist as such in these countries. Here also, the only reasonable choice would be to take advantage of the qualified labor force that is available and to add to the development of more advanced and economically efficient organisational forms.

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[83] See Combating age barriers in employment, European Foundatioin for the Improvement of Living and Working Conditions, Dublin, 1997, and new materials on their site http://eiro.eurofound.ie.

E. Conclusion

The arguments outlined in this report are provisional, and much work remains to be done to deepen the reflections on the future of the Enlarged Union to firm up the ideas. Moreover, the express aim of the report is not to provide firm conclusions and recommendations, but to act as a stimulus for extensive discussions both in and outside the Commission.

Agriculture with its high share of GDP and of the workforce is important for all PACs and its future will influence most of the EU15. The future of this sector is a key issue with respect to the development of the entire rural space. Industrial and service activities are essentially concentrated in the main cities, indicating the risk of a severe development gap between rural areas and urban centres. There is also a high degree of diversity among the agricultural sectors of the accession countries. This applies not only to productivity which in the most advanced countries is ten times higher than in the least productive ones, but also to patterns of specialisation. Some countries are strongly specialised on one agricultural sector, such as forestry with its specific problems and opportunities with respect to the pulp, paper and furniture industries. This indicates that, similarly to industrial development, reinforcing the establishment of new complementary patterns of specialisation in agriculture in both the CEEC and the EU 15 countries should be considered as an option for the longer term. The inevitable decline of agricultural employment in certain Candidate Countries, if not skilfully managed, could displace millions of people from low productivity agriculture. The phenomenon of rural-urban migration, the impact on overcrowded cities and the risk of major migratory movements within the future EU is highly probable if the process of transformation of agriculture is not tackled properly.

Part A suggests a change in thinking about the CAP and how it is put into practice. In this respect sustainable agriculture should become the primary objective for agricultural and rural development policy, both in the Western and the Eastern part of Europe. A more sustainable agriculture seeks to make the best use of nature's goods and services as functional inputs. It does this by integrating regenerative processes (such as nutrient cycling, nitrogen fixation, soil regeneration and natural enemies of pests) into food production processes. It minimises the use of inputs that damage the environment or harm human health. In other words, it is agriculture that minimises negative externalities and maximises the positive side-effects.

Part A contains several recommendations:

- to switch subsidies from production to the multifunctional side-effects of farming
- to develop a new "Greener Food Standard"
- to use the tax system to encourage more sustainable farming
- to develop new markets for positive side-effects of farming, particularly carbon, and
- to establish a "Royal" Commission on Sustainable Food and Farming

Investment in human capital stands out as one of the most productive investments one can think of. Everyday experience confirms that better educated citizens generally have above-average incomes and below-average unemployment rates. And human capital may not only be productive from an individual point of view. Society at large may also benefit from public investment in human capital formation if a high level of education could produce a dynamic comparative advantage in high-technology sectors that are often held to be the major engines of future prosperity.

In this context, EU membership is likely to generate a positive growth impact in the pre-accession countries because the implementation of a common set of laws and institutions may provide incen-

tives to increase technological diffusion and to raise the accumulation of physical and human capital. However, whereas world capital markets could almost immediately provide any required investment in technology, buildings and structures, human capital formation has a much longer gestation period and has to be financed mainly by domestic sources. Hence a low stock of human capital in PACs could prove to be a serious bottleneck for growth and development after EU membership.

Part B notes that as measured by conventional indicators of educational input and output, most pre-accession countries do not differ substantially from the EU average. However, these measures may not capture the economically relevant stock of human capital, especially in formerly socialist Candidate Countries. East Germany's experience with EU accession provides some evidence that the stock of human capital of Central European economies could be grossly overstated by measures relying only on formal education and training. These countries may in fact face a human capital deficit. However, there is very little empirical evidence from the experience of OECD countries that human capital formation can be easily supported by policy measures. Short run investments in human capital formation such as worker retraining programs have proved to be ineffective at best. Long run investment in human capital formation would have to focus on schooling, but strong increases in educational expenditure did not boost the quality of European schooling in the past. To foster human capital formation in the long run, an efficient schooling system would be required that would set incentives to improve on student performance and to save on cost. According to Part B, the main recommendations for pre-accession countries from the experience of EU-countries are:

Large-scale worker retraining programs should not be implemented due to their low cost-effectiveness.
Higher educational budgets are unlikely to lead to improved student performance as long as schooling systems can be considered as inefficient.
Reforming educational institutions should focus on creating transparent and competitive schooling systems.

It was found that one of the dangers of reform attempting to decentralise responsibility is that in some cases there are areas of overlapping or unclear responsibilities for certain aspects of the educational system. In some cases, the reforms have created new types of school which are competing with schools created by the former system which have not been abolished. It has been suggested that the existence of privately managed schools boosts the quality of education. While such schools do exist in some of the PACs, there is little data on their quality or their impact on the educational system as a whole. There is no uniform finding on responsibility for curricula. In Poland, it is chiefly the responsibility of the national Ministry of Education, while elsewhere there is a degree of autonomy at the local or school level. In the cases where there is autonomy, the success varies a great deal, since there seem to be no schemes in place to prepare those responsible for the task.

Part C displays suggestions that „Social Europe" based on shared values of equality and social structures is not always consistent with EU external policies in which the social dimensions seem to play only a secondary role.
Since 1997, the process of integrating the Candidate Countries into the EU is driven by their obligation to meet the "acquis" which omits important complementary social dimensions to enlargement. The however differentiated social policy systems within the EU15 display nevertheless harmonised democratic values. «Our social structures are (..) based on shared values of equality and are distinguished by their universal nature and by the extent of their social support systems... European social standards are higher and stronger than those of all other comparable economies,...social transfers in

EU member states help us to prevent poverty,...social policy is a productive factor that brings benefits for the economy, for employment, and for competitiveness.» [84]
As a result of certain socio-economic and demographic trends and the resulting increase in unemployment in the EU, social policy has become a prominent issue on the EU political agenda. The Council of Labor and Social Affairs decided in late 1999 to set up a high-level working group on sustainable pension systems, health care, and social inclusion[85] - however, finally it is under the auspices of the national policy making, to decide upon the social protection topography of a country.[86]
Candidate Countries must hence, be encouraged to invest in their national social protection systems; to assure solidarity-based system; and to ensure participation of the social partners. [87]
The European Union as the strongest player will have to support the "neighborhood's" transition into strong democratic market economies[88] while the role of political will must not be underestimated.

Looking here at the agenda at a 10 to 20-year horizon of time, **Part D** defines the main policy implications to be related to the strategic trade off in the capital/labor substitution; in the family policy as a condition of further demography and of further developments in the female labor supply; in the question of improved integration, both quantitatively and qualitatively, of the decreasing number of inflowing young people; in the question of a improved contribution of aging workers to economic growth and social welfare, and in the emigration question.

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[84] QUINTIN, O. Presentation at meeting of PHARE coordinators from the ten Candidate Countries. The Development of European Employment and Social Policy, DGV, European Commission, 2 March 1999.
[85] Council of Labour and Social Affairs, Conclusions, November 29th 1999.
[86] Mirjam Van Reisen, External Social Policy,
Http //www.3ocialwatch Org/2000/Eng/Thematicreports/Inconsistency_eng.pdf.
[87] LARSSON, A. Speech at Consensus Program Advisory Board (PAB) Meeting, December 14,1998, p. 4.
[88] http //www jrc es/pages/iptsreport/vol38/english/FUT5E386.htm.

References :

Barro, Robert J., Jong-Wha Lee (1996). International Measures of Schooling Years and Schooling Quality. American Economic Review 86(2): 218-223.

Barro, Robert J., Jong-Wha Lee (2000). International Data on Educational Attainment: Updates and Implications. NBER Working Paper, 7911, September.

Baumol, William J. (1967). Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis. American Economic Review 57 (3): 415-426.

Beaton, Albert E., Ina V.S. Mullis, Michael O. Martin, Eugenio J. Gonzalez, Dana L. Kelly, Teresa A. Smith (1996). Mathematics Achievement in the Middle School Years: IEA's Third International Mathematics and Science Study (TIMSS). Boston College, Chestnut Hill, MA.

Biczynski, Lukasz (2001): Polish Educational System. Past and Future Implications for Polish Nation. A contribution to the „Enlargement Futures ESTO Study". Manuscript, Warsaw, September 2001

Bishop, John H. (1997). The Effect of National Standards and Curriculum-Based Exams on Achievement. American Economic Review, Papers and Proceedings 87 (2): 260-264.

Bishop, John H. (1997): The Effect of National Standards and Curriculum-Based Exams on Achievement. American Economic Review, Papers and Proceedings, 87 (2), pp. 260-264

Csákó, Mihály (2001): Indicators of Human Capital Formation in Hungary. A contribution to the „Enlargement Futures ESTO Study". Manuscript, Budapest, November 2001

Dar, Amit, Indermit S. Gil (1998). Evaluating Training Programs in OECD Countries: Lessons Learned. World Bank Research Obsever 13: 79-101.

Dar, Amit; Gil, Indermit S. (1998). Evaluating Training Programs in OECD Countries: Lessons Learned. World Bank Research Observer 13, pp. 79-101

Dessous, Sébastinan (2001): Human Capital and Growth. The Recovered Role of Educational Systems. The World Bank, Washington D.C. 2001

Deutsches Institut für Wirtschaftsforschung (DIW), Institut für Wirtschaftsforschung Halle, Institut für Weltwirtschaft an der Universität Kiel (1999). Gesamtwirtschaftliche und unternehmerische Anpassungsfortschritte in Ostdeutschland. Kiel Discussion Papers, 346/347, June.

Dornbusch, Rudiger, Holger Wolf (1992). Economic Transition in East Germany. Brookings Papers on Economic Activity (1): 235-261.

Filacek, Adolf; Machleidt, Petr (2001): Education System in the Czech Republic. Problems and Perspectives. A contribution to the „Enlargement Futures ESTO Study". Manuscript, Prague, November 2001

Fischer, Stanley, Ratna Sahay (2000). The Transition Economies After Ten Years. NBER, Working Paper, 7664, April.

Fiszbein, Ariel (ed.) (2001): Decentraling Education in Transition Societies. Case Studies from Central an Eastern Europe. The World Bank Institute, Wahington D.C. 2001

Fitzenberger, Bernd, Hedwig Prey (1997). Assessing the Impact of Training on Employment: The Case of East Germany. IFO Studien 43: 71-116.

Fitzenberger, Bernd, Hedwig Prey (1997): Assessing the Impact of Training on Employment: The Case of East Germany. IFO Studien, 43, pp. 71-116

Fobel, Pavel; Fobelova, Daniela (2001): Die Informatisierung der Gesellschaft in der Slowakischen Republik. A contribution to the „Enlargement Futures ESTO Study". Manuscript, Banská Bystrica, November 2001

Fretwell, David H.; Colombano, Joe E. (2000): Adult Continuing Education: An Integral Part of Lifelong Learning. Emerging Policies and Programs for the 21st Century in Upper and Middle Income Countries. The World Bank, Washington D.C. 2000

Grissmer, David W., S.N. Kirby, M. Berends, S. Williamson (1994). Student Achievement and the Changing American Family. Rand Corporation, Santa Monica, California.

Gundlach, Erich (2001). Growth Effects of EU Membership: The Case of East Germany. International Institute for Applied Systems Analysis, Interim Report, IR-01-035, September 2001.

Gundlach, Erich (2001): Human Capital Formation: Some Perspectives for Pre-Accession Countries. Background Paper to the „Enlargement Futures ESTO Study". Manuscript, Kiel, October 2001

Gundlach, Erich, Desmond Rudman, Ludger Wößmann (forthcoming). Second Thoughts on Development Accounting. Applied Economics.

Gundlach, Erich, Ludger Wößmann (2001). Better Schools for Europe. European Investment Bank, EIB Papers, Vol. 6, 2001, No. 2, pp. 8-22.
Gundlach, Erich, Ludger Wößmann, Jens Gmelin (2001). The Decline of Schooling Productivity in OECD Countries. Economic Journal 111 (May): C135-C147.
Hall, Robert E., Charles I. Jones (1999). Why Do Some Countries Produce So Much More Output per Worker than Others? Quarterly Journal of Economics 114: 83-116.
Hanushek, Eric A. (1996). School Resources and Student Performance. In: Gary Burtless (Ed.), Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success. The Brookings Institution, Washington, D.C.: 43-73.
Hanushek, Eric A. (1997). The Productivity Collapse in Schools. In: William Fowler, jr. (Ed.), Developments in School Finance 1996. U.S: Department of Education, National Center for Education Statistics. Washington, D.C.: 183-195.
Heckman, James J., Robert J. Lalonde, Jeffrey A. Smith (1999). The Economics and Econometrics of Active Labor Market Programs. In: Orley Ashenfelter, David Card (eds.), Handbook of Labor Economics, Vol. 3, Amsterdam: 1865-2097.
Hoxby, Caroline M. (1996). How Teachers' Unions Affect Education Production. Quarterly Journal of Economics 111 (3): 671-718.
Hoxby, Caroline M. (2000). The Effects of Class Size on Student Achievement: New Evidence from Population Variation. Quarterly Journal of Economics 115 (4): 1239-1285.
Hoxby, Caroline M. (2000): The Effects of Class Size on Student Achievement: New Evidence from Population Variation. Quarterly Journal of Economics, 115 (4), pp. 1239-1285
Hübler, Olaf (1997). Evaluation beschäftigungspolitischer Maßnahmen in Ostdeutschland. Jahrbücher für Nationalökonomie und Statistik 216: 21-44.
Hübler, Olaf (1997): Evaluation beschäftigungspolitischer Maßnahmen in Ostdeutschland. Jahrbücher für Nationalökonomie und Statistik, 216, pp. 21-44.
International Association for the Evaluation of Educational Achievement (IEA) (1998). Third International Mathematics and Science Study. International Achievement Reports. Available from: http://wwwcsteep.bc.edu/TIMSS1/Achievement.html.
Kertesi, Gabor; Köllő, Janos (1999): Economic transformation and the return to human capital. The case of Hungary, 1986–1996. Budapest Working Papers on the Labor Market (BWP) 1999/6 (Labour Research Department, Institute of Economics, Hungarian Academy of Sciences – Department of Human Resources, Budapest University of economics, Budapest)
Kraus, Florian, Patrick A. Puhani, Viktor Steiner (1999). Employment Effects of Publicly Financed Training Programs: The East German Experience. Jahrbücher für Nationalökonomie und Statistik 219 (1/2): 216-248.
Kraus, Florian, Patrick A. Puhani, Viktor Steiner (1999): Employment Effects of Publicly Financed Training Programs: The East German Experience. Jahrbücher für Nationalökonomie und Statistik, 219 (1/2), pp. 216-248
Lechner, Michael (1999). An Evaluation of Public-Sector-Sponsored Continous Vocational Training Programs in East Germany. University of St. Gallen, Department of Economics, Discussion Paper, 9901, January.
Lechner, Michael (1999): An Evaluation of Public-Sector-Sponsored Continous Vocational Training Programs in East Germany. University of St. Gallen, Department of Economics, Discussion Paper, 9901, January 1999
Martin, John P. (1998). What Works Among Active Labor Market Policies: Evidence from OECD Countries' Experience. OECD, Labor Market and Social Policy-Occassional Papers, 35. Paris.
Martin, John P. (1998): What Works Among Active Labor Market Policies: Evidence from OECD Countries' Experience. OECD, Labor Market and Social Policy-Occassional Papers, 35. Paris 1998
OECD (1997): Thematic Review of the Transition from Initial Education to Working Life. Country Note Czech Republic. OECD November 1997
OECD (1999): Thematic Review of the Transition from Initial Education to Working Life. Country Note Hungary. OECD February 1999
Organisation for Economic Co-Operation and Development (OECD) (1998). Education at a Glance. OECD Indicators 1998. Paris.
PISA (2001): OECD PISA – Programme for International Student Asessment. Schülerleistungen im internationalen Vergleich. Im Auftrag der Kultusminister der Länder in der Bundesrepublik Deutschland und in Zusammenarbeit mit dem Bundesministerium für Bildung und Forschung. 2001

PISA (2001b): Knowledge and Skills for Life – First Results from PISA 2000. Paris: OECD 2001
Ragnitz, Joachim (1999). Warum ist die Produktivität ostdeutscher Unternehmen so gering? Konjunkturpolitik 45 (3): 165-187.
Robitaille, David F. (Ed.) (1997). National Contexts for Mathematics and Science Education. An Encyclopedia of the Education Systems Participating in TIMSS. Vancouver.
Robitaille, David F. (Ed.) (1997): National Contexts for Mathematics and Science Education. An Encyclopedia of the Education Systems Participating in TIMSS. Vancouver 1997
Sinn, Hans-Werner (2000). Germany's Economic Unification: An Assessment After Ten Years. NBER Working Paper, 7586, March.
World Bank (2000). World Development Indicators. CD-ROM.
World Bank (2000): Hidden Challenges to Education Systems in Transition Economies. The World Bank, Europe and Central Asia Region, Human Development Sector, Washington D.C. 2000.
Wößmann, Ludger (2000). Schooling Resources, Educational Institutions, and Student Performance: The International Evidence. Kiel Institute of World Economics, Working Papers, 983, December.
Wößmann, Ludger (2001). Why Students in Some Countries Do Better: International Evidence on the Importance of Education Policy. Education Matters 1 (2): 67-74.
Wößmann, Ludger (2001): Why Students in Some Countries Do Better: International Evidence on the Importance of Education Policy. Education Matters 1 (2), pp. 67-74

Further reading

Documents on the Accession Partnership Agreements:
At present Accession Partnership Agreements exist for Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. Documents can be found at:
http://europa.eu.int/comm/enlargement/report_10_99/download_1999.htm
A draft version of an accession partnership agreement for Malta can be found at:
http://europa.eu.int/comm/enlargement/malta/index.htm
A draft version of an accession partnership agreement for Turkey can be found at:
http://europa.eu.int/comm/enlargement/turkey/index.htm

Documents on the Regular Reports (reviews of progress with respect to targets set in Accession Partnership Agreements): At present Regular Reports exist for: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Turkey. The documents can be found at: http://europa.eu.int/comm/enlargement/report_11_00/index.htm, Additionally a summary report named "Enlargement Strategy Paper, Report on progress towards accession by each of the Candidate Countries" exists at the same location.

Documents related to the Energy Acquis:
A Green Paper on Security of Supply of Energy can be found at:
http://europa.eu.int/comm/energy_transport/en/lpi_lv_en.html
A range of different documents on energy policy distributed on supply and demand groups can be found at: http://europa.eu.int/comm/energy/en/lpi_3_en.html
General information on rules and regulations in force in the energy field can be found at Eur-lex:
ttp://europa.eu.int/eur-lex/en/lif/ind/en_analytical_indfex_12.html

Documents related to the Transport Acquis:
Information on the Common Transport Policy can be found at:
ttp://europa.eu.int/comm/transport/site_map_en.html
A guide to the Transport Acquis can be downloaded from:
http://europa.eu.int/comm/transport/themes/enlargement_policies/english/ep_1_en.html
General information on rules and regulations in force in the transport field can be found at Eur-lex:
http://europa.eu.int/eur-lex/en/lif/ind/en_analytical_index_07.html

Documents on the Environment Acquis
General information about EU environmental policy, impact assessments, etc can be found at:
http://europa.eu.int/comm/environment/pubs_en.htm
A Communication on enlargement and environment can be found at:
http://europa.eu.int/comm/environment/docum/98294sm.htm
A handbook for implementation of environmental legislation can be found at:
http://europa.eu.int/comm/environment/enlarg/handbook/handbook.htm
General information on rules and regulations in force in the environment, consumers and health protection field can be found at Eur-lex: http://europa.eu.int/eur-lex/en/lif/ind/en_analytical_index_15.html

Other supporting documents
General information on rules and regulations in force can be found at Eur-lex:
http://europa.eu.int/eur-lex/en/index.html, Additionally the Official Journal, White Papers, Green Papers, Communications, etc. can be found at this site.

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